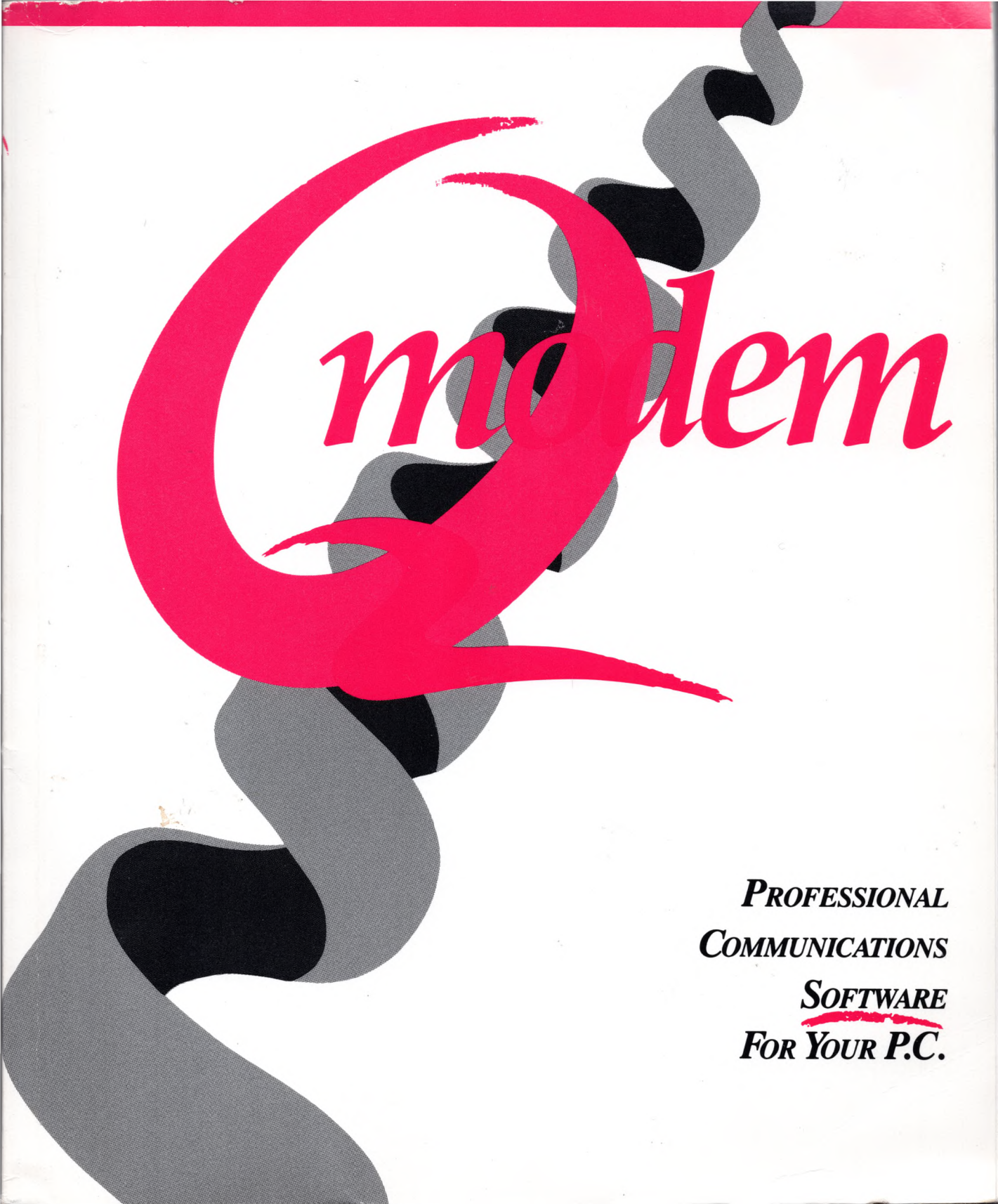
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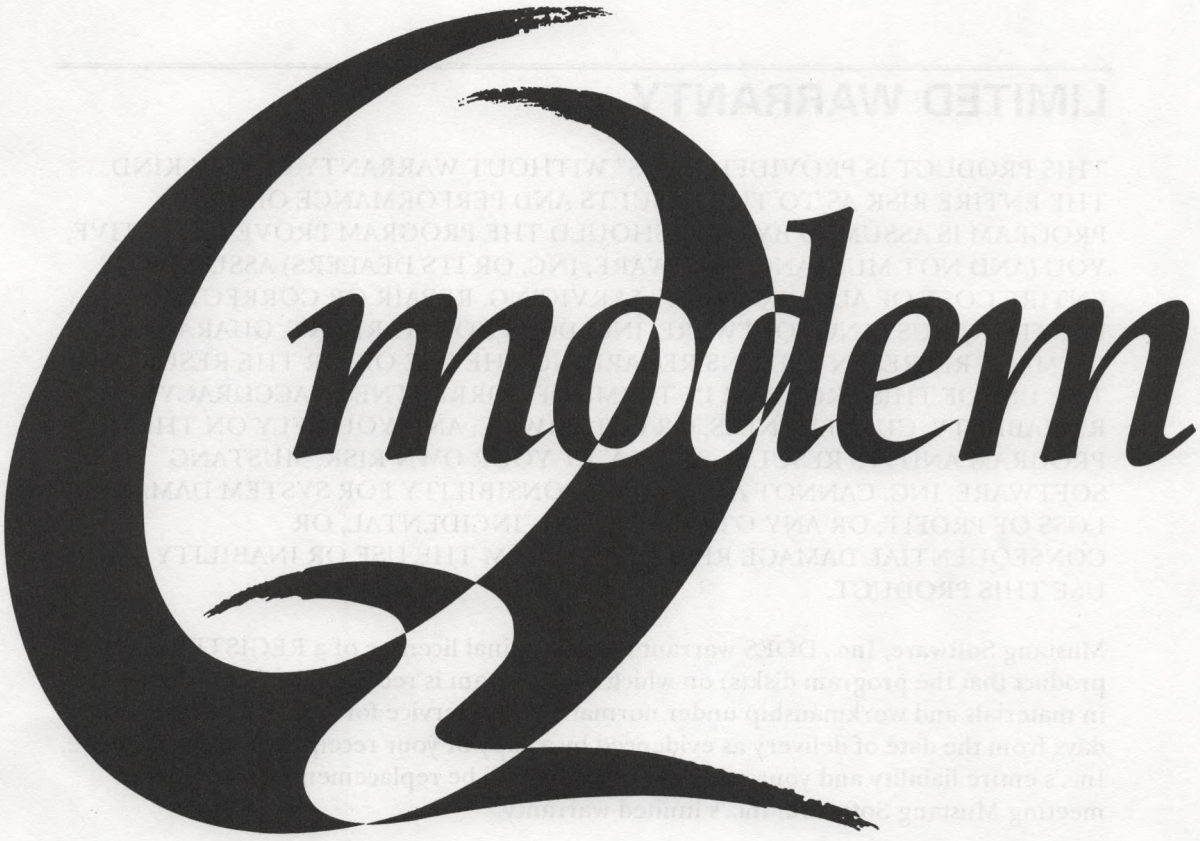

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Chapter 1

Introduction

"Make it so."

Jean Luc Picard

In this Chapter...

- How to use this manual
  Where to go first & how to use it as a reference guide
- What is *Qmodem*
  Professional communications software
- System requirements
  What is needed to operate the program
- Technical Support
  How to get help when you need it

HOW TO USE THIS MANUAL

This documentation is organized for use as an initial setup guide, and as a reference book. Introductory information on Qmodem 4.5 is presented first (chapter 1), followed by step-by-step installation and configuration instructions (chapters 2 and 3), followed by command reference material (chapter 4 and 5) and finally by Qmodem 4.5 Script documentation (chapter 6).

Unless you are intimately familiar with Qmodem 4.5 you should begin with chapter 1 and follow the instructions through chapter 2. After completing the setup material, a full reading of the complete configuration and operational refernce is strongly recommended. Qmodem 4.5 is a very versatile and configurable program. There is no substitute for reading the operational reference to become famliar with the numerous features available. Make use of the F1 key for context-sensitive help at any time. Also, the Home key offers a summary of keystrokes available.

After you have installed and run Qmodem 4.5, the manual will serve as a reference guide. It is indexed extensively. After completing the initial setup you should be able to easily locate material on any topic by checking the Table of Contents or the Index.

Don't overlook the sections devoted to Technical Support, the Qmodem Editor and the Script Language.

WHAT IS QMODEM 4.5?

QMODEM 4.5 is a full-featured modem communications program. It is designed to provide for all the communications needs most users are likely to encounter. It is yours to use as long as desired, but is yours alone; you are not free to pass copies of QMODEM 4.5 to friends.

In order to take full advantage of your QMODEM 4.5 you must mail in the enclosed registration card right away. Sending the registration card now will ensure you are registered with MSI for technical support and other services in the future. PLEASE MAIL IN YOUR REGISTRATION CARD TODAY!

WHAT ADDITIONAL FEATURES ARE IN THE FULL COMMERCIAL VERSION?

Although the version you have received is fully functional with no limitations, the commercial release sold in stores and by Mustang Software has some additonal features that could not be included in this package. Here is a list of some of the features and enhancements in the full commercial release of Qmodem:

- Qmodem v5 includes Off-Line Xpress (A $40 value). This QWK-mail compatible reader is suitable for use with the Tomcat, QMail, MarkMail and other QWK-compatible mail doors found on many Bulletin Board Systems.
- The Qmodem Editor (QMEDIT) is a standalone program. This is an easy-to-use ASCII text editor, suitable for creating batch files, and other files which require plain ASCII text. Its commands are compatible with the familiar Wordstar(tm) program.
- The Alt-V "View" command now allows you to configure your own file listing utility as opposed to the default Qmodem editor QMEDIT.
- 3 additional fields are included in the dial directory entries.

  Key File The name of a .KEY file to be loaded

  Emulation The emulation to use when calling

  Com Port The Com Port to use, 1..8 or "C" for Current Port

  With these new fields, the "O"ther Screens toggle now rotates through 3 different views.

- Several new "@" macros have been added to the Alt-J keyboard reassignment function and added Alt-W Wide View to Keyboard editor. Here is the list of new "@" macros:

@UPLOAD	Invokes the PgUp Upload function
@DOWNLOAD	Invokes the PgDn Download function
@ADDLF	Invokes the AddLF function (Old ShiftTab)
@MENU	Invokes the HOME Menu
@SCROLLBACK	Invokes the UpArrow Scrollback function

@CAPTURE	Invokes the Ctrl-Home Capture File function
@BREAK	Invokes the Ctrl-End BREAK function

These codes can be placed in any of the 91 programmable macro keys now defined in Alt-J, and allow the user to configure these program functions to his/her own preference.

WHAT DO I GET IF I UPGRADE TO THE FULL COMMERCIAL VERSION?

- A copy of the latest release of the Commercial Version packaged with dual media diskettes, a $99 value;
- A more comprehensive, updated, typeset operations manual;
- Continued free technical support by phone between 9:00am and 5:00pm Pacific time;
- Automatic notification of any major program updates;
- Additional program updates at a significantly reduced rate;
- Access to proprietary utility programs, written by both MSI and other authors, which enhance and add features;
- 24-hour access to the private multi-line Registered Users BBS at Mustang Software.

To obtain the latest release you can call our toll-free ORDERS ONLY HOTLINE 1-800-999-9619

Use your VISA, MasterCard, American Express, or even COD. For information, please call 805-395-0223. Technical questions regarding QMODEM 4.5 operation may be answered by calling our support department direct at (805) 334-2240.

Upgrades to the full commercial release are available to QMODEM 4.5 users for only $35.

SYSTEM REQUIREMENTS

QMODEM 4.5 requires an IBM PC,XT,AT,PS/2 or IBM compatible computer with at least 384K RAM, a hard drive with a minimum of 2 megabytes of free space, a Color or Monochrome video adapter and monitor, and a serial port and modem.

OPERATING ENVIRONMENTS

Three multitasking environments are supported:

- DESQview; from QuarterDeck Office Systems.
- TaskView/OmniView; from Sunny Hill Software.
- Windows version 3.0 and greater from Microsoft.

DESQview and Windows allow QMODEM 4.5 to run in a window without requiring the whole screen. TaskView takes a slightly different approach and gives QMODEM 4.5 an entire screen when the partition is selected. All of these multi-tasking programs let you be more productive by running other software at the same time as QMODEM 4.5 .

The Utilities Disk contains special configuration files for DESQview and Windows.

QMODEM 4.5 may not operate properly when other background software is running. By other background software, we mean programs that are loaded in the CONFIG.SYS, or by a BAT file and remain in memory. Certain screen clock programs, for example, are known to interfere with serial port operations.

If you experience loss of incoming data or other unpredictable problems, it is possible that one of these programs is interfering with QMODEM 4.5. Remove these programs or device drivers from the AUTOEXEC.BAT or CONFIG.SYS file one at a time until you find the offender.

Another method is to start DOS without any resident programs or device drivers and add them back in, one at a time, until the culprit is identified. Most expanded memory drivers, mouse drivers, and hard-disk partitioning software drivers do not interfere with QMODEM 4.5 operation.

One program which is known to interfere seriously with serial port operations is the clock driver supplied with some early memory and multi-function boards.

Conflicts with QMODEM 4.5 may not be caused by a single program, but by a combination of programs, which, taken singly, cause no problems. Therefore, if you suspect some conflict, you should boot your system with only absolutely necessary device drivers and resident programs (i.e. a partitioned disk device driver).

TECHNICAL SUPPORT

QMODEM 4.5 was designed for ease of use, and this manual should contain the answers to most of your questions. Read it first and check the appendices for trouble-shooting procedures. If you're still stumped, technical support is only a phone call away. You may first want to call our BBS system at 805-395-0650 for valuable insight by other QMODEM users. Feel free to look around, download any files on the system that may be of use to you, or leave a [C]omment to the Sysop if you need a question answered. This method of obtaining support is especially good if you want expert guidance regarding the more advanced features.

Another alternative is CompuServe where we are a part of the PC Vendor Support Forum. You reach us by typing GO PCVEN and then selecting Sub Topic 9. Our PIN is (75236,3312). Support is also available on GEnie, in the MSI Round Table.

If you are unable to find the answer to a question or just need a quick explanation, please give us a call between 9:00am and 5:00pm Pacific time. You can reach technical support at

(805) 334-2240. We must, however, limit tech calls to those problems not resolved after reading this manual. Technical support is not (and should not be) a substitute for this manual.

GETTING HELP WHEN YOU NEED IT

QMODEM 4.5 features context-sensitive help. As the name suggests, relevant help information is available for any command as you execute it, just by pressing the F1 Help Key.

For example . . . You have the Alt-K window open and pressed F1. The help window would look like this:

```
                    Change COM Port (Alt-K)

Qmodem can immediately switch between any one of eight communication ports
on computers so equipped.  The standard COM1 and COM2 ports are Qmodem
defaults; port definitions beyond COM2 must be specified with the Alt-N/M/P
configuration menu.

If you have defined additional COM ports, your menu may look something like
this:

                      Set COM Port
                  Active COM Port is COM1

                  1  COM1  Base(03F8) Irq(04)
                  2  COM2  Base(02F8) Irq(03)
                  3  COM3  Base(03E8) Irq(04)

                  Your choice : _

To select a new serial port, type the desired number from the displayed
list.

 F1-Topic Index   AltF1-Previous Topic   ESC-Exit
```

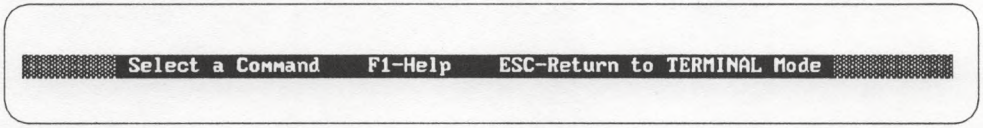
Now, if this isn't what you were looking for or if you wanted to get a list of Help Topics, just press F1 again. The Topic Index contains all of the major Alt- commands, and some of the common procedures you might need. It may look something like this:

```
                              Topics
 ■ Help with ONLINE HELP          ■    Function Keys (Alt-J)
 ■ Moving around in the INDEX     ■    Hang Up (Alt-H)
 ■ Dialing another System         ■    Host Mode (Alt-5)
                                       Invoice for Ordering (Alt-I)
8th Bit Toggle (Alt-8)                 Log File Toggle (Alt-0)
Adding Linefeeds (Shift-Tab)           Printer Echo Toggle (Alt-9)
ANSI Music Toggle (Alt-M)              Screen Dump (Alt-T)
Backspace <> DEL Toggle (Alt-1)        Script File Execution (Alt-F)
Batch Entry Window (BEW)               Script Parameters (Alt-F)
Beeps & Bells Toggle (Alt-B)           Script QuickLearn (Alt-Q)
Capture File Toggle (^Home)            Scroll Back (UpArrow)
Change COM Port (Alt-K)                Scroll Back Toggle (Alt-U)
Change Directory (Alt-O)               Send BREAK Signal (^End)
Change Drive (Alt-L)                   Setup - The top menu (Alt-N)
Clear Screen (Alt-C)                   Split Screen Mode (Alt-S)
Communication Parameters (Alt-P)       Status Line Info Toggle (Alt-7)
Delete a File (Alt-Y)                  Status Line Toggle (Alt-Minus)
Dialing Directory (Alt-D)              Terminal Emulation (Alt-G)
Directory Display (Alt-W)              Translate Tables (Alt-A)
Doorway Keyboard Emulation (Alt-Equal) Upload Protocols (PgUp)
Dos Shell (Alt-R)                      Video 25-Line Mode (Alt-2)
Download Protocols (PgDn)              Video 43/50-Line mode (Alt-4)
                                                    ↓ for more
 F1-Topic Index   AltF1-Previous Topic   ESC-Exit
```

From here, you can jump over to help on other commands, or get more help on how the Help System works. Help remembers where you have been, so you can retrace your steps backwards by pressing Alt-F1 back to the original screen.

The online help is not all-inclusive, which is why you are reading this paragraph. Although the context-sensitive help is as detailed as possible, it still is no substitute for this documentation.

Summary command help is available from the HOME window by pressing the F1 key, followed by the desired command key combination. When the F1 key is pressed, the status line changes to the following display:



For example, to get summary help for the Translate Table command (Alt-A), press Alt-A, and the Translate Table summary help window will be displayed.

If you pressed F1 by mistake, press ESC to return to the previous Status Line.

Pressing ESC will exit 99.9% of all windows and QMODEM 4.5 functions without making any changes.

DEFINITIONS

Throughout the documentation, you may run into technical terms or everyday computer terminology with which you are not familiar. Following are some text examples you may come across:

ENTER	This represents the Return or Enter key on the keyboard. If you see this in the text, press the Enter key rather than typing in the string.
ESC	This refers to the Esc key on the keyboard.
Alt char	Alt- is always followed by a character which means press and hold the Alt Key and hit the following letter. Alt-A means hold the Alt key down and press 'A'.
Ctrl char	Is executed the same way the Alt- is handled. You press and hold the Ctrl key and then press the following letter. Ctrl key combinations may also be specified by the ^ (caret) as in ^T (Ctrl-T).

Chapter 2
Installation

"No sadder proof can be given by a man of his own littleness than disbelief in great men.".

Thomas Carlyle

In this Chapter...

- Installation
  Copying the program from the distribution diskettes
- Hard disk and floppy disk usage
  How to create diskettes for floppy drive operation
- Command line parameters
  Starting *Qmodem* with switches to implement features

INSTALLING QMODEM 4.5

Back up your diskettes! The first thing you should do is back up your QMODEM 4.5 distribution disks. Always backup your disks! I can't stress this enough! Please refer to your DOS manual if you are not sure how to backup your disks.

QMODEM 4.5 as originally distributed comes on two floppy disks labelled INSTALL and UTILITIES, containing the program files and utility files in compressed format, plus an INSTALL program which unpacks the files and prepares you to set up QMODEM 4.5 on your hard disk.

Your vendor may have pre-installed QMODEM 4.5 on your hard disk already. If that is the case, you may skip the installation instructions and proceed directly to the next section. Nevertheless, the following instructions will be useful if at some time you need to re-install the program on your hard drive.

If you received QMODEM 4.5 on floppy disk(s), place the install diskette into your floppy drive and type:

INSTALL [Enter]

to begin the unpacking and installation process. You will be prompted to enter the source drive and to confirm or change the destination drive and path. The installation program will then unpack the program files and prompt you to insert the second diskett, from which it will extract the utility files and move them all to the directory you've specified for the installation.

When the installation process has completed, you will then be shown a short message file which contains important last-minute information on starting and running QMODEM 4.5 for the first time. Please read this file carefully!

To finish installing QMODEM 4.5, you should modify your AUTOEXEC.BAT file as follows:

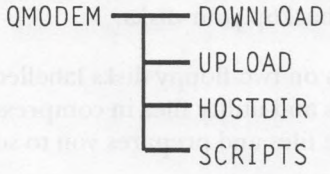
1. Add the C:\QMODEM subdirectory to your existing PATH= statement.

2. Add a SET QMODEM=C:\QMODEM (or the name of the subdirectory you create). This is an environment variable that QMODEM 4.5 checks when it is loaded. If it finds one, then it will also search the defined subdirectory for any of the QMODEM 4.5 specific files it requires.

Making these two adjustments allows QMODEM 4.5 to be started from any subdirectory without needing a special BAT file. You could start QMODEM 4.5 from your word-processor directory simply by typing QMODEM at the DOS prompt!

SUBDIRECTORY STRUCTURE

It is said that a picture is worth a thousand words... Here is a picture of one possible QMODEM 4.5 subdirectory setup on a hard disk:



The QMODEM\DOWNLOAD directory will be used to store all uploaded and downloaded files. A separate directory is optional, but having it will make it easier for you to see what you have transferred.

The QMODEM\HOSTDIR is similar to the QMODEM\DOWNLOAD directory, but is used by the internal Host mode of QMODEM 4.5. Callers to the HOST will be restricted to this directory.

The QMODEM\SCRIPTS directory is used for script file storage. Keeping scripts in a dedicated directory makes script maintenance easier. Copy all .SCR files from the distribution disks to this directory.

UPGRADING FROM A PREVIOUS RELEASE

Please refer to the file README.1ST on the first disk. This contains specific instructions for upgrading from previous releases of QMODEM 4.5.

COMMAND LINE PARAMETERS

Certain QMODEM 4.5 features are (out of necessity) implemented via command line parameters and have no terminal mode or script command equivalents. Command line parameters are not case sensitive and may be specified in any order.

The following DOS command-line parameters are valid when starting QMODEM 4.5 :

/HOST

Will invoke the Host Mode immediately after startup. This option can be used to start an unattended Host system as soon as the machine is booted, by adding the QMODEM 4.5 start command to your AUTOEXEC.BAT file.

/S=SCRIPT.SCR

Autoexec Script: the QMODEM 4.5 script file to be executed immediately upon startup. The script file must be located in the script directory as specified in Alt-N/D/S or in the current directory if the Alt-N/D/S field is blank.

/STATS

Shows the technical information while QMODEM 4.5 is loading. Such things as: Number of Scroll-back lines, UART detected and so on.

/VGA=[mode]

Allows users of VGA and EGA cards to switch into a non-standard video mode at start-up. As long as your video card allows setting the AL register to the desired mode, this will do the trick.

/VEGAVGA=[mode]

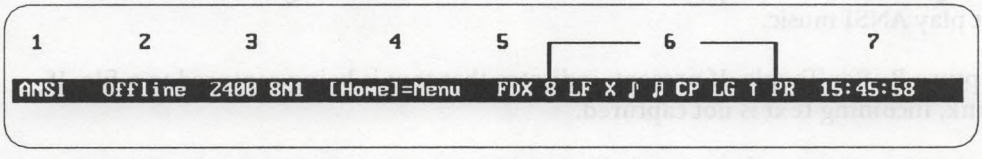
An Option Specific to the VEGA VGA cards from Video-7 Inc. Allows setting an alternate text mode (like 132x43) from the command line. This is different from the normal /VGA= command because the Video Seven boards have to load the registers in a non-standard way.

/R

This allows you to restart QMODEM 4.5 without being prompted to send the modem init string if you are already online.

THE STATUS LINE

While in terminal mode, QMODEM 4.5 displays many of its operational settings in the Status Line at the bottom of the screen:



The status line is divided into the following areas:

1: The terminal emulation in effect. In the above example, ANSI emulation is active.

2: The Online/Offline indicator. When connected to another computer, the word "Online" will be displayed in this area. When QMODEM 4.5 is first started, this indicator should read "Offline". It could also display either "DOORWAY" or "doorway" if the Alt-= toggle is set ON. The upper case Doorway means you are Online, while lower case means you are Offline.

3: The current communication parameters: Baud Rate, Data Bits, Parity, and Stop Bits. These values will change to reflect changes made with the Alt-P command, or to reflect the values defined in the Dialing directory for each number.

4: A short reminder to press the Home key to view the Main Help Menu, which shows all available commands. Summary help on any QMODEM 4.5 command may be obtained directly from the Main Menu as well.

5: The current Duplex (a.k.a. Echo) state. FDX stands for Full Duplex and HDX stands for Half Duplex. Refer to the Alt-E command for a full explanation of Duplex mode.

6: The current state of QMODEM 4.5 Toggles. There are 9 toggles, from left to right:

8 Hi-bit strip toggle. A "7" means that the high bits are stripped, and an "8" means all bits are used.

LF Add Linefeed Toggle. If "LF", a Linefeed will be added to all incoming Carriage Returns. If disabled, this area will be blank.

X XON/XOFF toggle. If "X", Xon/Xoff flow control is active. If this area is blank, Xon/Xoff flow control is ignored by QMODEM 4.5 .

B Beeps & Bells Toggle (Shown on-screen as a single musical note). If present, indicates that QMODEM 4.5 will generate sounds on the PC's speaker when specific conditions are met. If this is blank, QMODEM 4.5 produces no sounds.

M Music Toggle (Shown on-screen as a double musical note). If present, indicates that QMODEM 4.5 will play ANSI Music if found. If blank, QMODEM 4.5 will not play ANSI music.

CP Capture Buffer Toggle. If present, indicates that text is being captured to a file. If blank, incoming text is not captured.

LG Session Log Toggle. If present, indicates that the Session LOG is active. If blank, the session LOG is not active.

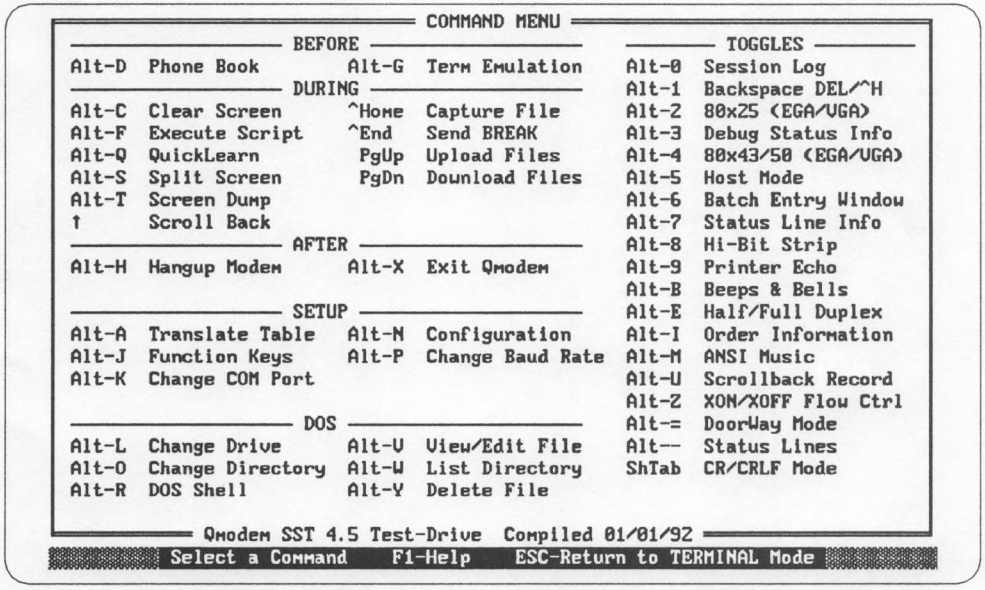
^ Scroll-back Toggle (Shown on-screen by an up-arrow). If present, QMODEM 4.5 is capturing incoming data to the scroll-back buffer. If blank, the scroll-back feature is not active.

PR Printer Toggle. If present, screen text is also sent to the printer.

7: The last item on the Status Line is the System Clock. When ONLINE, the clock displays Elapsed-Time (the duration of the call). When OFFLINE, the clock displays the time-of-day.

THE HOME MENU

Pressing the [Home] key displays the following screen which describes all available commands:



The Home Menu is divided into the following areas:

BEFORE Commands you are likely to use before dialing a system such as setting terminal emulation and getting into the dialing directory itself.

DURING Commands you are likely to use while online.

AFTER Commands used to end your online session or exit.

SETUP Commands used to change operational parameters.

DOS Commands which interact with your computer, rather than with the computer you are calling.

TOGGLES Commands that activate or deactivate certain features. Operating these toggles is usually done by pressing the corresponding key combination.

Notice that the Terminal Mode status line changes when the Home Menu is displayed (see above example) As the Home status line indicates, you can get summary help for any command by pressing F1, then the desired command key combination. Pressing ESC returns you to terminal mode.

QMODEM 4.5 updates or replaces the Status Line to reflect the current environment, the function being performed, or the command being executed. Check the Status Line often, it may help you get out of trouble if and when you get stuck!

Chapter 3
Configuration

"The optimist proclaims that we live in the best of all possible worlds;
and the pessimist fears this is true"

James Branch Cabell

In this Chapter...

- Configuration
  The QINSTALL (Qmodem Setup) program
- Defaults and setup parameters
  Video, modem, directories, protocols, files
- Saving a configuration

QINSTALL

Starting QMODEM 4.5 for the First Time

If this is your first time, you need to run the program QINSTALL before you can run QMODEM 4.5. This is the installation program that fine tunes QMODEM 4.5. Qinstall is started by typing Qinstall and pressing the [ENTER] key from the DOS prompt.

After the Qinstall opening screen, you are presented with the QMODEM 4.5 Installation Part 1 screen:

```
                    QMODEM INSTALLATION PART 1

The file QMODEM.CNF was not found in the current directory or the directory
pointed to by the Environment variable "QMODEM=",  so it is assumed this is
a new installation.   A few questions will be asked to determine how Qmodem
should be setup for you.  Please follow the  directions and  this will only
take a few minutes.

Display adapter detected : VGA
Do you have a Color monitor connected ? [Y/N]
```

Qinstall then examines your hardware and tries to determine which video card you are using. In the previous example, a VGA card was detected. Other possibilities include Monochrome (which includes Hercules cards), CGA, EGA and MCGA. If Qinstall cannot figure out your type of adapter, we sure would like to hear from you about it.

The next question asks if you have a color monitor attached to your video card. Monochrome displays my be attached to some color adapters. If this is your case, reply no to this question.

Setup questions are based on the video adapter in your system. The previous example applied to EGA/VGA/MCGA adapters. If your color system is equipped with a CGA or monochrome display, the prompts would have changed to ask if your system required special handling for video snow. Early IBM CGA and some IBM clones suffer from snow and flicker when display memory is accessed. When testing for snow, Qinstall attempts to generate the snow or flicker on your display.

Monochrome setups are the easiest to install. Qinstall simply asks you to press any key to continue.

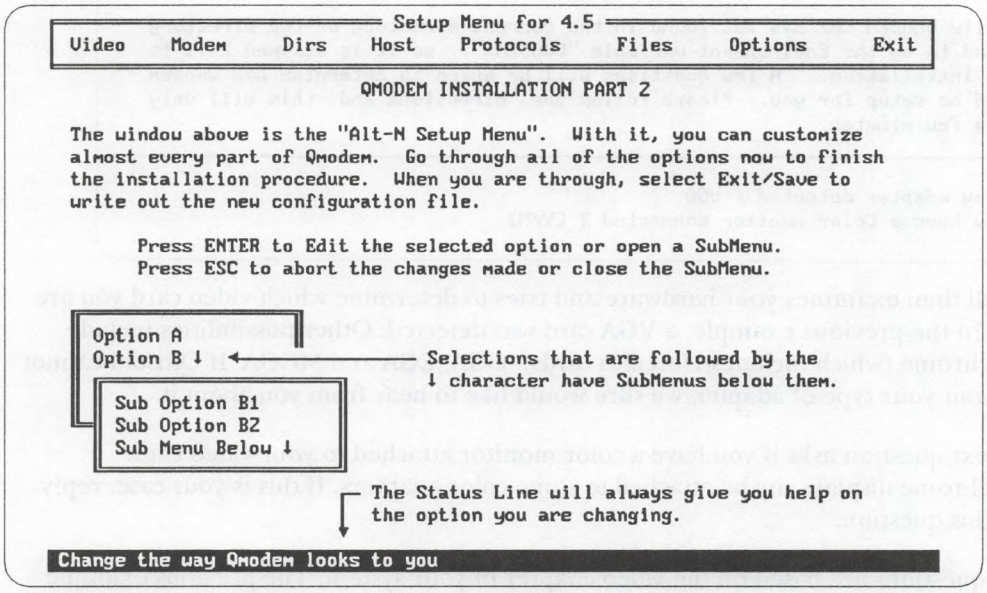
NOTE: If you are upgrading from a previous release, QModem will read the existing QMODEM.CNF and skip these questions.

CONFIGURATION

Configuring QMODEM 4.5 is simple, whether you are installing QMODEM 4.5 for the first time or upgrading from a previous release. Seasoned QMODEM 4.5 veterans should read the section on Menu Navigation and Upgrading from a previous release. First time users should go through the Installation Section of the manual and ignore the Upgrade section.

QINSTALL Menu Navigation

The Qinstall Setup Menu will be automatically displayed the first time QMODEM 4.5 is started.


Setup Menu for 4.5
Video Modem Dirs Host Protocols Files Options Exit
QMODEM INSTALLATION PART 2
The window above is the "Alt-N Setup Menu". With it, you can customize almost every part of Qmodem. Go through all of the options now to finish the installation procedure. When you are through, select Exit/Save to write out the new configuration file.
Press ENTER to Edit the selected option or open a SubMenu.
Press ESC to abort the changes made or close the SubMenu.
Option A
Option B ↓
Selections that are followed by the ↓ character have SubMenus below them.
Sub Option B1
Sub Option B2
Sub Menu Below ↓
The Status Line will always give you help on the option you are changing.
Change the way Qmodem looks to you

The window above is the "[ALT][N] Setup Menu". With it, you can customize almost every part of QMODEM 4.5. Go through all of the options now to finish the installation procedure. When you are through, select Exit/Save to write out the new configuration file.

Press [ENTER] to Edit the selected option or open a SubMenu. Press [ESC] to abort the changes made or close the SubMenu. Selections that are followed by the "." character have SubMenus below them. The Status Line will always give you help on the option you are changing.

Qinstall can be started from inside of QMODEM 4.5 with the [ALT][N] command.

The top window is the [ALT][N] Setup window, which we will refer to as Setup from here on. Since this is a new installation, it is invoked automatically. The accompanying text explains how to navigate through the Setup Menus. This text is only shown for first-time installation. Subsequent calls to Setup only display the Menu Window. As with QMODEM 4.5, you gave the complete Online Help system by pressing the [F1] key!

Items may be selected with two different methods:

1. By pressing the highlighted letter in the desired menu entry, or
2. By moving the selection bar to the desired item and pressing [ENTER]. To move the selection bar, use the cursor keys.

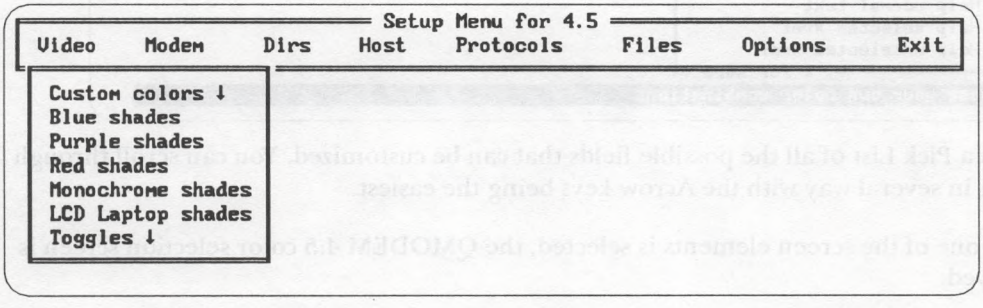
Menu entries followed by a down-pointing arrow have one or more additional menu levels. When such an entry is selected, another menu will be displayed from which additional entries or parameters are configured. Since all Main Setup Window entries have associated menus, the arrows are omitted.

While in Setup, the status line always displays a brief description of the currently selected item. If additional information is needed, press the [F1] key for detailed online help.

To save a change, press [ENTER]. Press [ESC] to abort a change and restore its original value. Changes to the Setup are not saved automatically; when done you must use the Exit/Save Top Menu Option to save all changes in the QMODEM.CNF file.

FIRST TIME SETUP

Now that you can navigate through Setup menus, let's start with the various setup tasks from left to right. Colors are first . . .



ALT N V Video

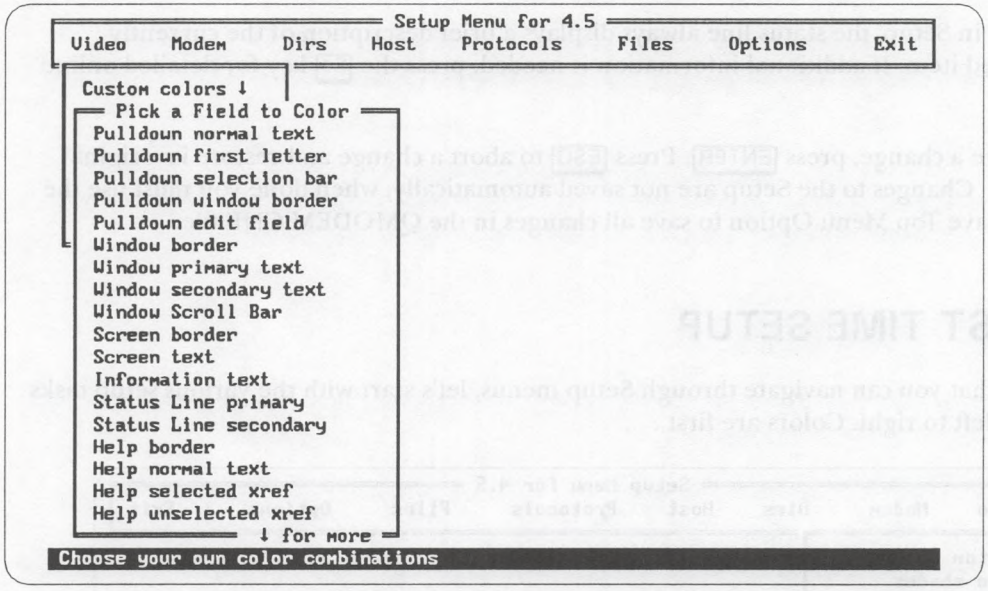
The Video Setup option is used to configure QMODEM 4.5 screen colors and toggles. You may select one of 5 pre-defined color combinations, customize the colors to your liking and set video related Toggles.

The Monochrome and LCD Laptop entries are intended for standard monochrome displays and Laptop Liquid Crystal Displays (LCD) which can only display shades of gray.

Colors are a cosmetic feature and have no effect on QMODEM 4.5's operation. First-time users should select one of the predefined color combinations and concentrate on other sections of the QMODEM 4.5 setup. Colors may be customized easily after all other operational parameters.

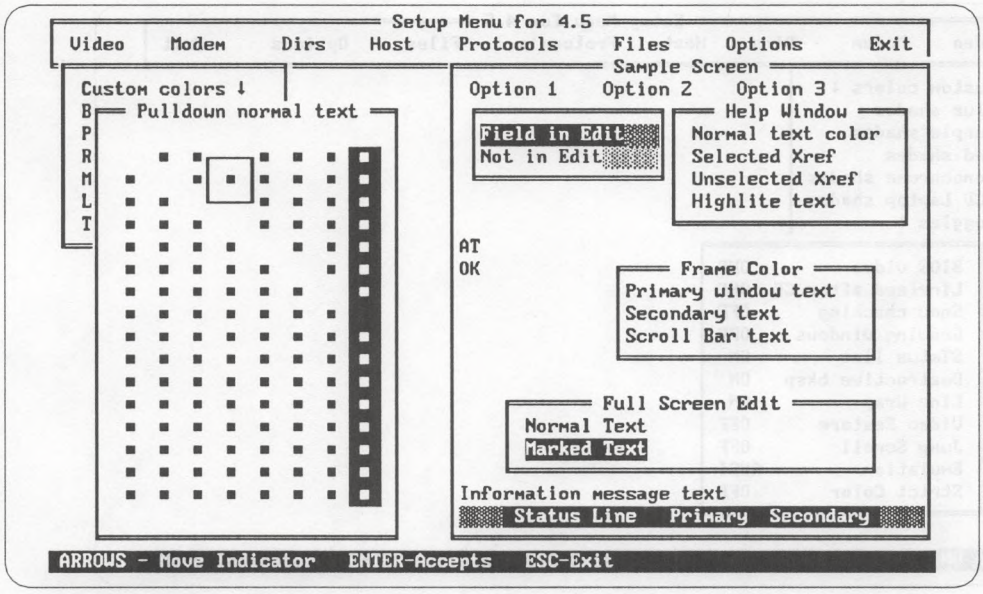
ALT N V C Custom Colors

Selecting the Custom Colors options yields the following menu:



This is a Pick List of all the possible fields that can be customized. You can scroll through the list in several way with the Arrow keys being the easiest.

When one of the screen elements is selected, the QMODEM 4.5 color selection screen is displayed:



At the left of the screen is a color chart showing all possible foreground and background color combinations. To the right is a sample of all the windows that QMODEM 4.5 and Qinstall will display. The top of the left window tells you which selection you are changing. In the example, the Pulldown Normal Text is being modified.

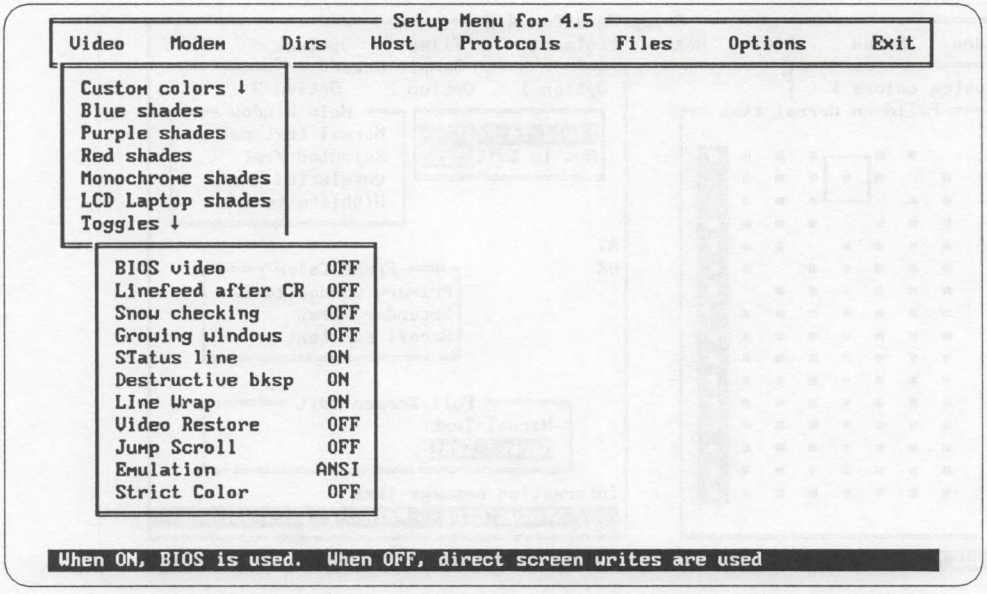
To select a color, move the square color selector box in the left window with the arrow keys. The change is immediately reflected in the QMODEM 4.5 mini- screen on the right side of the display.

Pressing [ESC] restores the item's original color. To confirm the color change, press [ENTER]. All color changes will take effect immediately.

Color changes must be saved explicitly via the [ALT][N] Exit/Save menu option. If the new color settings are not saved, the last color setup will be restored the next time QMODEM 4.5 is started.

[ALT][N][V][T] Toggles

The Toggles menu lets you set such things as how characters should be displayed, how windows in QMODEM 4.5 should be displayed, and how to handle certain types of incoming data. The menu looks like this:



When OFF, QMODEM 4.5 writes directly to screen memory, which results in extremely fast screen displays. When ON, all screen displays are performed via calls to the system's ROM BIOS, and screen displays are much slower. BIOS Video mode must be ON when QMODEM 4.5 operates under DoubleDOS.

This only applies to the text displayed that is received from the serial port. Qinstall and most windows in QMODEM 4.5 still write directly to video memory.

QMODEM 4.5 is fully DESQview aware. When running QMODEM 4.5 under DESQview, set BIOS Video mode to OFF. With other multi-tasking programs, you should experiment with this setting to determine the best operating mode.

ALT N V T L Linefeed after CR

Setting this ON causes QMODEM 4.5 to add a linefeed (LF) character after every carriage return (CR) character. This may be needed if text lines seem to overwrite the previous line on the screen. This toggle can be changed with the Shift Tab command.

ALT N V T S Snow Checking

Older CGA display adapters (and some CGA clones) may exhibit "snow" when video memory is accessed. If this is the case, set this toggle to ON. QMODEM 4.5 will use a

different memory access method which may help alleviate the problem. This toggle is not used if your system is equipped with an MDA, EGA, or VGA display.

While running under DESQview, you can set this to OFF for slightly improved display speed.

ALT N V T G Growing Windows

Controls the method used to display windows on screen. When ON, windows will grow or explode onto the screen. When OFF, windows will pop onto the screen instantly.

ALT N V T T Status Line

This toggle controls displaying of the status line (the last line of the physical screen). When OFF, the QMODEM 4.5 status line is not displayed and the last screen line is available for incoming text display. When ON (the default), the status line is used to display the status of the Terminal mode and options of various command windows.

The Screen will clear when this is toggled ON and OFF.

ALT N V T D Destructive Backspace

This controls whether or not the character to the left of the cursor is erased when a Backspace character (^H or DEL) is received. When ON, the character is erased before the cursor is moved to the left. When OFF, the cursor moves leaving the character to the left untouched.

ALT N V T I Line Wrap

This controls how the cursor reacts when it writes a character in the last column on the screen (usually column 80). When set ON, the cursor moves the next line down, performing a Line Feed if the cursor was on the last line on the screen. When set OFF, the cursor writes the character in the last column, but does not advance to the next line.

ALT N V T V Video Restore

When set ON, QMODEM 4.5 will attempt to restore the original mode of your video card to the settings prior to starting QMODEM 4.5. If you want to leave the last video mode that QMODEM 4.5 is using active upon exit, set this to OFF.

ALT N V T J Jump Scroll

This changes the method used to scroll the screen. If you have a CGA card (the ones that cause snow), you may want to set this OFF to see if the screen scrolls more smoothly. The default mode is ON to be compatible with the previous releases of QMODEM 4.5.

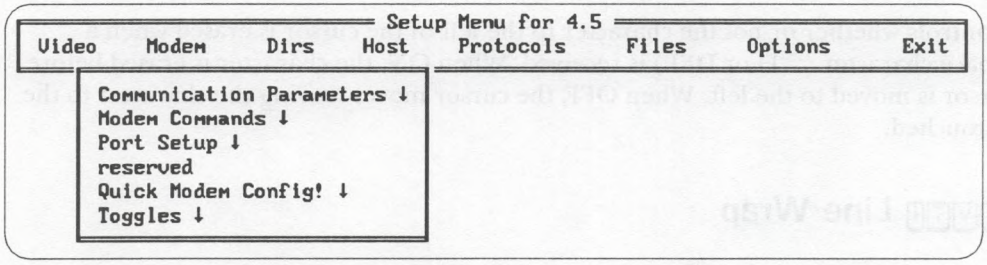
ALT N V T E Emulation

This is the default terminal emulation mode used by QMODEM 4.5. Press ENTER to present a submenu with the list of available emulations. Use the up and down arrow keys to select the emulation you need and press ENTER.

ALT N M Modem

Modem-dependent settings affect the interaction between QMODEM 4.5, your computer, and your modem. If you use a 2400bps Hayes Smartmodem (or compatible) attached to COM1, most of QMODEM 4.5's default modem parameters are correct. However, the modem setup must be reviewed to insure that specific parameters are set properly.

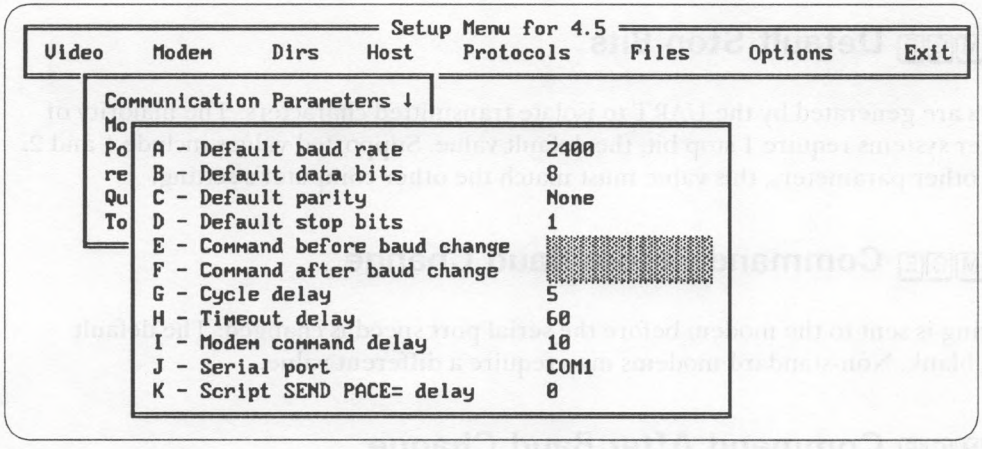
Selecting the ALT N Modem option yields the following menu:



ALT N M C Communications Parameters

These hardware parameters control the operation of the communication port and its interaction with the modem.

When the Communication parameters option is selected, the following menu is displayed:



ALT N M C A Default Baud Rate

The Baud Rate is the speed at which the COM port operates and should match the modem's speed. Supported speeds are 110, 300, 1200, 2400, 4800, 9600, 19200, 38400, 57600 and 115200. The default baud rate is 2400.

NOTE: With many error-correcting and high-speed modems, the COM speed can be set higher than the modem's nominal communications speed. For example, the USR Courier HST modem, rated at 9600 baud, supports a COM speed of 38400 baud. Consult your modem manual for additional information on supported COM speeds.

ALT N M C B Default Data Bits

Characters transmitted over phone lines are made up of data bits. Supported settings are 7 and 8. For systems which support text and binary program file transfers (IE., most PC- based BBS systems), 8 data bits are required. When communicating with mainframe or minicomputer-based systems, 7 data bits is often used. This setting must match that of the software operating on the remote computer.

ALT N M C C Default Parity

Parity is used to insure the validity of the data being transmitted and received. Parity values are None, Odd, Even, Mark and Space. This value must match that used by the computer being called. Most BBS's use None (no parity), the default value.

ALT N M C D Default Stop Bits

Stop bits are generated by the UART to isolate transmitted characters. The majority of computer systems require 1 stop bit, the default value. Supported values include 1 and 2. As with other parameters, this value must match the other computer's setting.

ALT N M C E Command Before Baud Change

This string is sent to the modem before the serial port speed is changed. The default value is blank. Non-standard modems may require a different value.

ALT N M C F Command After Baud Change

This string is sent to the modem after the serial port speed is changed. The default value is blank. Non-standard modems may require a different value.

ALT N M C G Cycle Delay

The Cycle Delay is the number of seconds QMODEM 4.5 waits after an unsuccessful dial (IE., a BUSY signal) before trying the next number in the dialing queue (or the same number again). The default value is 10 seconds.

ALT N M C H Timeout Delay

The Timeout Delay is the number of seconds QMODEM 4.5 waits for a connection after dialing a number. When this period has expired, QMODEM 4.5 will instruct the modem to hang up. The default value is 60 seconds.

Most modems feature an internal timeout delay. When dialing, the shortest delay will prevail. Make sure that your modem's internal timeout value is at least equal to the QMODEM 4.5 setting. In Hayes and compatible modems, the command ATS7=60 will set the modem's internal delay to 60 seconds. Increasing the modem's own timeout value allows total control over the dialing process.

ALT N M C I Modem Command delay

This is the delay, in milliseconds (1000 = 1 second) inserted between characters sent to the modem while it is OFFLINE. The default value is 0. Some high-speed modems may require a non-zero value if commands are not recognized, or if the modem does not

return an OK acknowledgment. The most common symptoms are the modem's lack of an OK response when first initialized, or the modem's inability to dial.

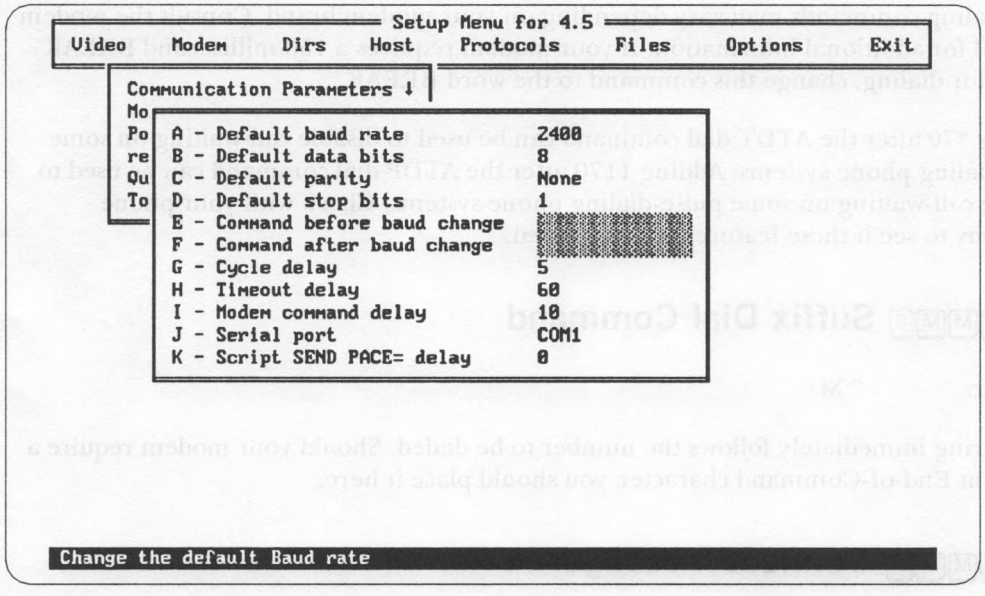
ALT N M C J Serial Port

This is the port number (1-8) to which the modem is attached. The default is port 1. For port addresses higher than 2 be sure to configure the Base address and IRQ in the ALT N M P menu.

The default Speed, Parity, Data bits and Stop bits values are not fixed. Defaults can be overridden in each dialing directory entry to match the settings of the remote computer.

ALT N M M Modem Commands

When the Modem Commands option is selected, the following menu is displayed:


Setup Menu for 4.5
Video Modem Dirs Host Protocols Files Options Exit
Communication Parameters
A - Default baud rate 2400
B - Default data bits 8
C - Default parity None
D - Default stop bits 1
E - Command before baud change
F - Command after baud change
G - Cycle delay 5
H - Timeout delay 60
I - Modem command delay 10
J - Serial port COM1
K - Script SEND PACE= delay 0
Change the default Baud rate

Modem commands define the text of messages sent to the modem to cause a specific action (IE., dial, hang up), or received from the modem to acknowledge a command (OK, ERROR), or reflect a specific condition (BUSY, CONNECT, NO CARRIER).

ALT N M M I Initialization Command

Default: AT E1 Q0 M1 X1 V1 S7=60^M

This command resets Hayes and compatible modems to their standard operating parameters. This command may vary depending on the modem being used; consult the modem manual.

ALT N M M P Prefix Dial Command

Default: ATDT

This command is used to tone-dial a number on Hayes and compatible modems. It is sent to the modem immediately before the telephone number to be dialed. For pulse-dialing, change this to ATDP.

The dialing commands may vary depending on your modem brand. Consult the modem manual for additional information. If your modem requires a 150 millisecond BREAK signal for dialing, change this command to the word BREAK.

Adding *70 after the ATDT dial command can be used to disable call-waiting on some tone-dialing phone systems. Adding 1170 after the ATDP dial command can be used to disable call-waiting on some pulse-dialing phone systems. Check with your phone company to see if these features are supported.

ALT N M M S Suffix Dial Command

Default: ^M

This string immediately follows the number to be dialed. Should your modem require a different End-of-Command character, you should place it here.

ALT N M M C Connect Message

Default: CONNECT

The message returned by the modem when a successful connection has been established. Most modems will also return the connect speed as part of the message, IE: CONNECT 2400. Do not include a speed value as part of this message. Doing so will prevent a connection if the baud rate is different from the one you entered.

ALT N M M 1 Error Message 1
ALT N M M 2 Error Message 2
ALT N M M 3 Error Message 3
ALT N M M 4 Error Message 4

Defaults: BUSY
NO CARRIER
NO DIAL TONE
NO CONNECT

These error messages are returned by the modem when the connection could not be established. Your modem may return different messages; refer to the manual for additional information.

Many modems can be set to return Numeric result codes rather than Verbose result codes. Although either can be used, you should use the more descriptive verbose messages. If the modem is set to return numeric codes, QMODEM 4.5 will not be able to determine the connect speed.

ALT N M M A Abort Dial Command

Default: ^M

This string will be sent to the modem when a dial request is to be canceled (IE: pressing ESC from the dialing directory screen while dialing is in progress). Most modems accept ^M. If the modem supports dropping DTR as a disconnect method, the word DTR (Data Terminal Ready) should be entered in this field. Consult the modem manual for information on this feature.

ALT N M M H Hangup Command

Default: ^~^~^~+++^~^~^~ATH0^M

This command will cause Hayes and compatible modem to hang up. Each ^~ pair causes a 1/2-second delay. In the example above, the +++ modem escape sequence is preceded and followed by a 1.5 second delay. This delay, referred to as escape guard time, is required for the modem to recognize the escape sequence and switch to command mode. The ATH0^M command then instructs the modem to go on-hook (hang up).

For modems which recognize dropping of the DTR signal as a disconnect method, specify the word DTR in this field. To hang up, QMODEM 4.5 disables the DTR signal, pauses, and then re-establishes it. This hardware-only method, if supported by your modem, is far more reliable than using a modem software command which could easily fail (IE., because of line noise). The reason the DTR method is not the default is, unfortunately, not all modems support DTR disconnect control.

Specifying BREAK will send the modem BREAK signal for 150 milliseconds. Some modems attached to PBX (Public Board eXchange, a.k.a. switchboard) require a BREAK in order to disconnect a call.

[ALT][N][M][M][R] Redial Hangup Text

Default: RING

This message text, when received, will cause QMODEM 4.5 to stop dialing immediately. If you are sharing a voice line with your modem, this allows you to answer the phone personally. If your modem is connected to its own dedicated phone line, this field can be left blank.

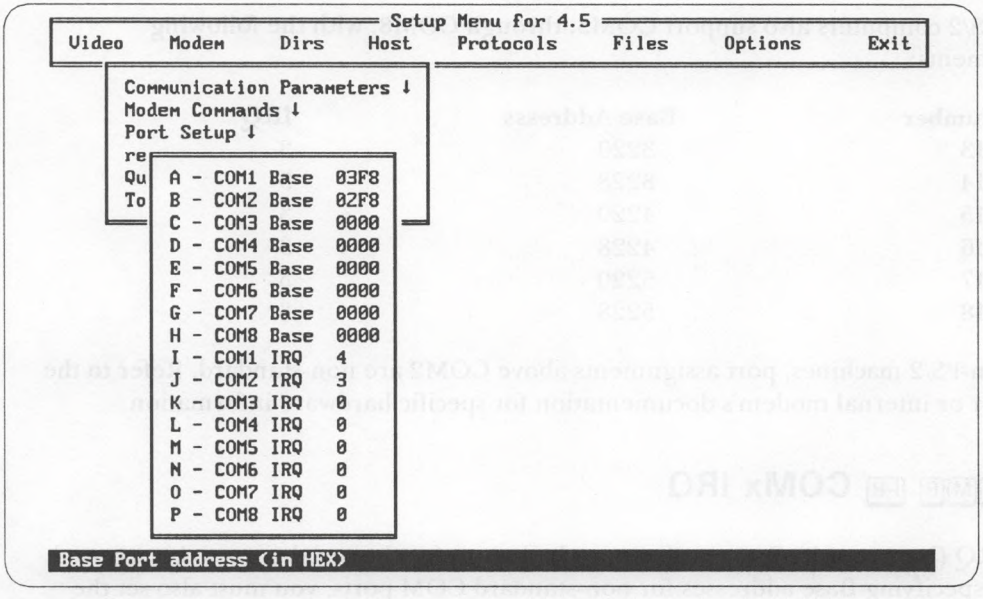
[ALT][N][M][P] Port Addresses

Port addresses are hardware-dependent values which define the computer's communications ports. QMODEM 4.5 allows you to define up to eight communication ports (COM1 through COM8). Two COM ports (COM1 and COM2) are standard for most IBM PC, XT, AT, PS/2 and compatible machines. This does not mean that all machines have both ports. These are optional. You still have to verify which ports you have available.

An internal modem takes up a COM port. If you have two ports in your machine (COM1 and COM2), you CANNOT set the internal modem to either COM1 or COM2 and expect it to work. You should set the internal modem to the first available port. (in this example, it should be configured for COM3)

Because it is possible to install an internal modem or additional serial port so that it shares an IRQ with another device, you should declare all the installed serial ports in QMODEM 4.5. This allows QMODEM 4.5 to disable other ports that may conflict with the port you are trying to use. If a port is disabled, it will be enabled if you exit QMODEM 4.5 or select another port with [ALT][K].

When the Port Address option is selected, the following menu will be displayed:


Setup Menu for 4.5
Video Modem Dirs Host Protocols Files Options Exit
Communication Parameters ↓
Modem Commands ↓
Port Setup ↓
A - COM1 Base 03F8
B - COM2 Base 02F8
C - COM3 Base 0000
D - COM4 Base 0000
E - COM5 Base 0000
F - COM6 Base 0000
G - COM7 Base 0000
H - COM8 Base 0000
I - COM1 IRQ 4
J - COM2 IRQ 3
K - COM3 IRQ 0
L - COM4 IRQ 0
M - COM5 IRQ 0
N - COM6 IRQ 0
O - COM7 IRQ 0
P - COM8 IRQ 0
Base Port address (in HEX)

ALT N M P A-H COMx Base Address

These are the computer's COM port hardware addresses. QMODEM 4.5 supports default assignments for two serial ports, COM1: and COM2:. For PC/XT/AT and compatibles equipped with IBM-standard adapters, the port address and IRQ assignments need not be changed.

Non-PS/2 computers can address COM3: through COM8:. Internal modems usually have the following Base Address assignments:

Port Number	Base Addresss	IRQ
COM3	3E8	4
COM4	2E8	3

Be sure to read your manual that comes with your internal modem to verify these setting.

CAUTION: If you intend to install an internal modem as COM3 or COM4, and it is going in a computer that is not EISA or MC bussed, then try to set the IRQ to a value other than 4 or 3. On an AT, try 5 or 2. Not all internal modems allow you to change the IRQ and this may not apply to you. If you cannot set an IRQ other than 4 or 3, then be aware that QMODEM 4.5 will disable COM1 or COM2 while you are using the modem. (IE: if you have a serial Mouse on COM1 and your internal modem is set for COM3, then the mouse will be disabled while in QMODEM 4.5.

IBM PS/2 computers also support COM3: through COM8: with the following assignments:

Port Number	Base Addresss	IRQ
COM3	3220	3
COM4	3228	3
COM5	4220	3
COM6	4228	3
COM7	5220	3
COM8	5228	3

On non-PS/2 machines, port assignments above COM2 are non-standard. Refer to the adapter or internal modem's documentation for specific hardware information.

ALT N M P I-P COMx IRQ

The IRQ (Interrupt ReQuest) value must be known for the serial ports to be accessed. When specifying Base addresses for non-standard COM ports, you must also set the correct IRQ values. Failure to set the IRQ will prevent QMODEM 4.5 from accessing the COM port and will make communications impossible. (You also stand a good chance of locking up your computer!)

Refer to the previous example for setting up a PS/2 COM3: or COM4: board.

ALT N M Q Quick Modem Config

This is probably the single most wanted feature in a communication program . . . A method to quickly configure your new modem to work! It's not like the old days where we had just a handful of modem commands and everybody knew them by heart.

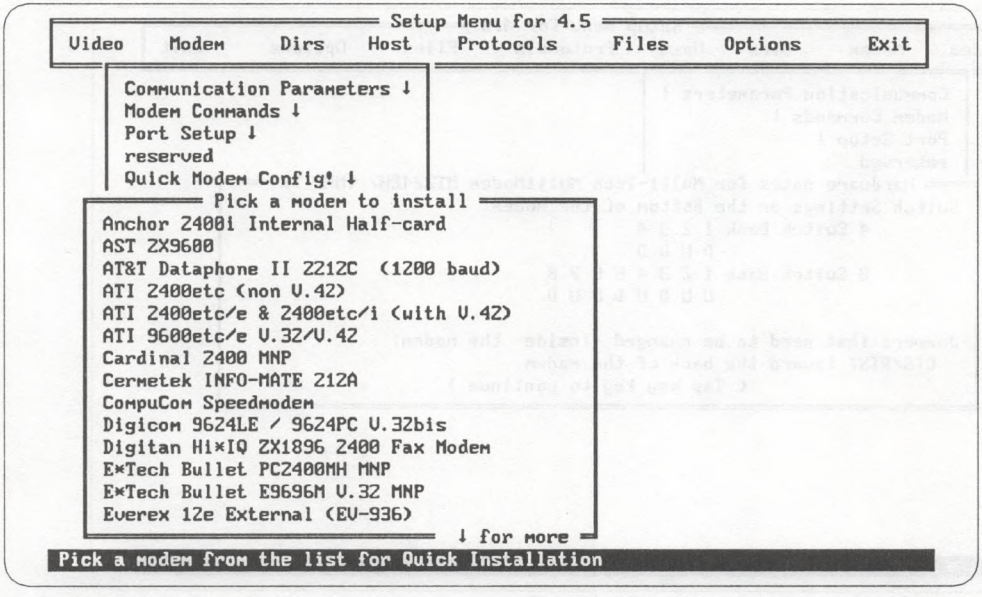
Now we have High-Speed modems with things like MNP and V.32 and V.42 and Speed Buffering and on and on and so forth. Each modem maker that enhanced upon the Hayes standard had to come up with their own new commands. To add to the confusion, some have the same command(s), but mean different things to different modems!

Enter Quick Modem Config! It takes the worry and confusion out of setting up your complex modem. Everything in the modem and QMODEM 4.5 is setup all at once with a minimum of user intervention. Like the commercial said, "Set it, and forget it."

The heart of Quick Modem Config (herein called QMC) is the QMODEM.MDF file. This is the Modem Definition File that QMC uses to configure your modem and

QMODEM 4.5. As new modems are added to the MDF file, we post the new version on our BBS.

The QMC window looks something like this:



Your list of modems may differ — more modem types may have been added since this manual went to print.

This is another Pick List. You move the Scrollbar to highlight your modem from the list and press [ENTER]. If your modem does not appear in the list, call us. We may have added it to the MDF file and have it posted for download. In the meantime, you can probably use one of the Generic entries to get you going.

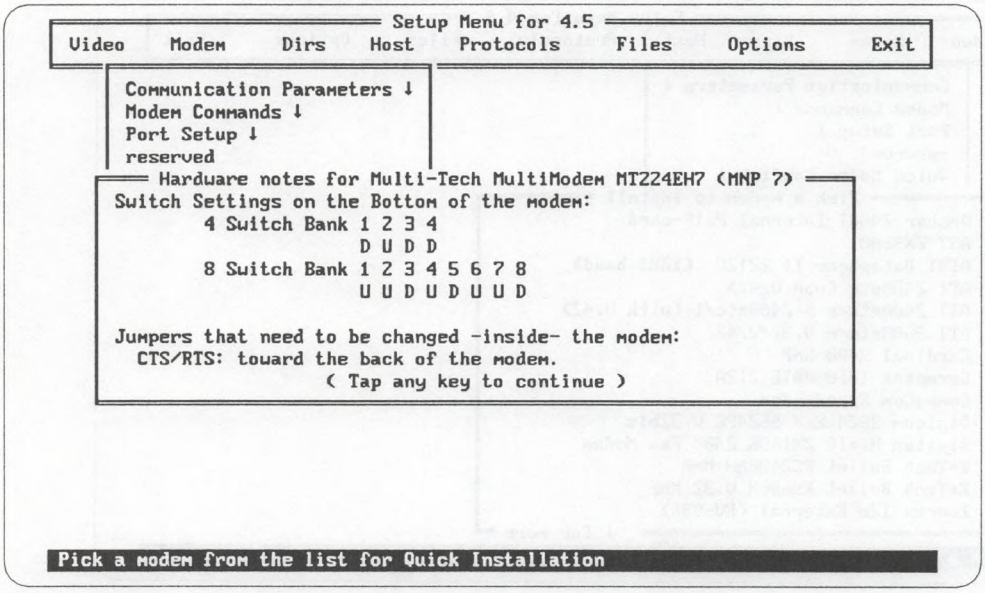
Depending on the modem, there are up to 4 different windows that may pop up during the process.

1. Speed Detection.
2. Hardware Notes.
3. Modem Init Commands.
4. Additional Notes.

Just follow the directions in each window as it is displayed.

Ok, your modem is in the list, and you want to get going! Let's say you have a MultiTech MT224 EH7 external and have selected it.

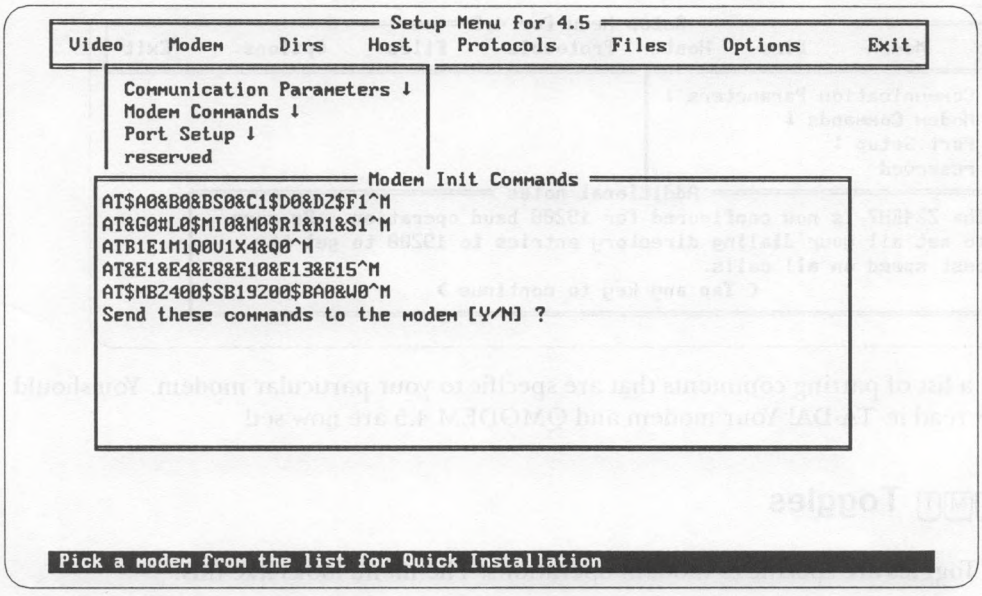
The screen will look something like this:


Setup Menu for 4.5
Video Modem Dirs Host Protocols Files Options Exit
Communication Parameters ↓
Modem Commands ↓
Port Setup ↓
reserved
Hardware notes for Multi-Tech MultiModem MT224EH7 (MNP 7)
Switch Settings on the Bottom of the modem:
4 Switch Bank 1 2 3 4
D U D D
8 Switch Bank 1 2 3 4 5 6 7 8
U U D U D U U D
Jumpers that need to be changed -inside- the modem:
CTS/RTS: toward the back of the modem.
(Tap any key to continue)
Pick a modem from the list for Quick Installation

If you get a Hardware Notes window (like above), follow the directions. Do not skip any steps! There is always a reason for moving jumpers or switches.

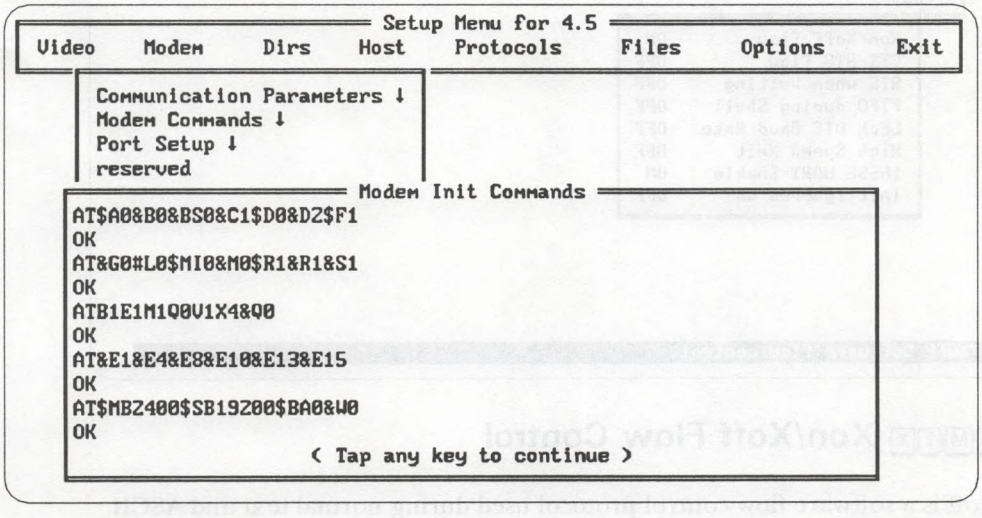
After you have done what is asked, just tap any key to continue.

The MultiTech then gets the next window:

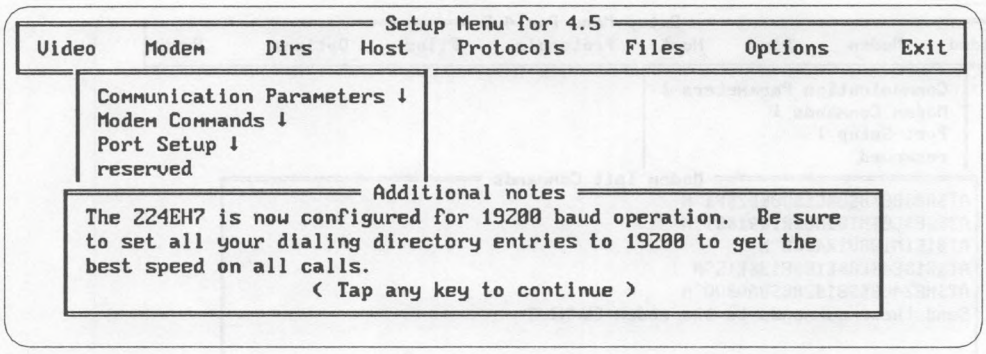


The Modem Init Commands window contains a list of modem commands that to be sent to the modem. Just in case, there is a prompt to confirm the sending of these commands. 99.9% of all users should answer Y to this prompt. Besides, failure to do so will not guarantee correct operation in QMODEM 4.5.

You should verify that the modem responds OK to each line that is displayed. Like this:



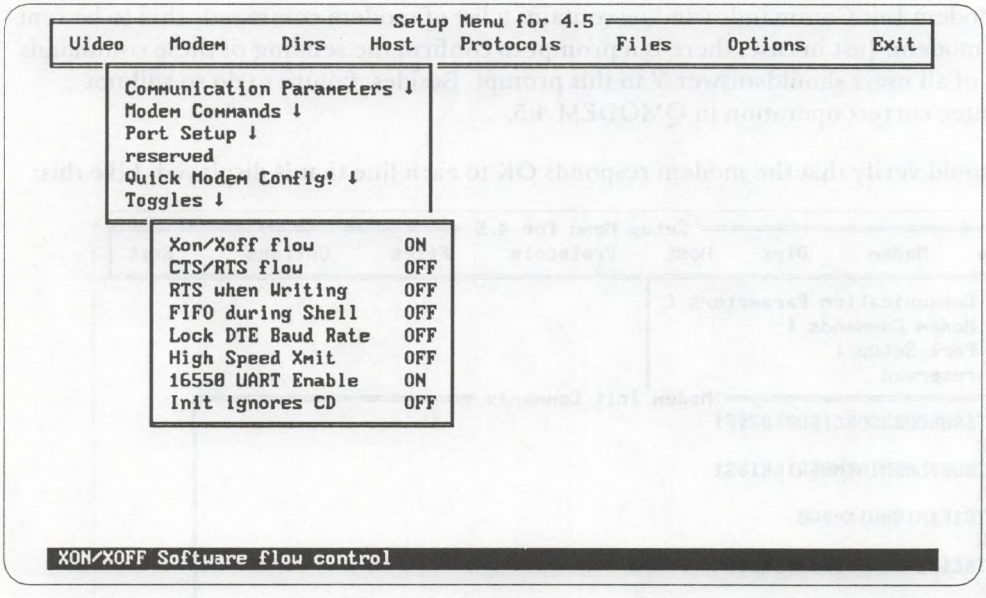
And finally, the Additional Notes window:


Setup Menu for 4.5
Video Modem Dirs Host Protocols Files Options Exit
Communication Parameters ↓
Modem Commands ↓
Port Setup ↓
reserved
Additional notes
The 224EH7 is now configured for 19200 baud operation. Be sure to set all your dialing directory entries to 19200 to get the best speed on all calls.
< Tap any key to continue >

This is a list of parting comments that are specific to your particular modem. You should at least read it. TA-DA! Your modem and QMODEM 4.5 are now set!

[ALT][N][M][T] Toggles

These Toggles are specific to modem operations. The menu looks like this:



[ALT][N][M][T][X] Xon/Xoff Flow Control

Xon/Xoff is a software flow control protocol used during normal text and ASCII transmissions. This toggle can also be changed from terminal mode with the [ALT][Z] command.

XOFF and XON are ^S (CTRL S) and ^Q (CTRL Q) characters, respectively. Most BBS and mainframe systems use XOFF and XON as a method of pacing text data transmissions. If the XON/XOFF toggle is ON, QMODEM 4.5 will send the XOFF character when its receive buffer is almost full, and will display the following message on the Status line:

```
Buffer FULL - Keyboard Input Suspended - Please Wait
```

As text is displayed, the receive buffer empties and can accept more data. QMODEM 4.5 then sends the XON character to resume transmission and restores the normal status line.

The XON/XOFF software flow control is not used during Binary file transfer protocols.

ALT N M T C CTS/RTS Flow Control

When set to ON, QMODEM 4.5 implements hardware handshaking between the modem and computer. This is required for high-speed and error-correcting modems. Since additional signals are required to implement hardware handshaking, make sure that your external modem cable (if any) supports the CTS and RTS signal lines.

ALT N M T W CTS when Writing

This toggles controls CTS/RTS hardware flow control when writing to disk during a binary file download. When this toggle is OFF, QMODEM 4.5 drops the RTS signal while writing data to the disk, and raises RTS after the data has been written.

When this toggle is ON, the RTS signal remains on during the disk writes. This allows QMODEM 4.5 to overlap disk and serial port activity while downloading data on systems equipped with hardware-handshaking modems (IE, high-speed or MNP modems). For this option to work properly, the ALT N M T C flag must be ON.

Normally, the RTS (Request To Send) signal line is dropped low (turned off) whenever a block of data is being written to disk. This stops the modem from sending data to the computer during that time, which could cause data loss due to a missed interrupt.

If your computer and hard disk are fast enough, you can gain a small but measurable increase in download speed by using this option.

If you are downloading across a network to a file server drive, it is strongly recommended that you do NOT use this option.

ALT N M T F FIFO during Shell

This toggle only applies to systems with serial adapters equipped with a 16550 or 16550A UART, which feature a First-In, First-Out (FIFO) data buffer. When ON, QMODEM 4.5 leaves the 16550/16550A UART in FIFO mode. When OFF, QMODEM 4.5 disables the FIFO buffer, and the 16550x UART runs in 16450 compatibility mode.

Some external transfer protocols may require this toggle to be OFF for correct operation. If your external transfer program aborts immediately upon startup, try setting this to OFF and execute the external again.

This toggle only works if QMODEM 4.5 detects the 16550/16550A UART in your system at startup.

In testing QMODEM 4.5, FIFO buffer operation improved performance in systems running under DesqView and equipped with high-speed modems.

Problems may occur when upgrading from an 8250 or 16450 UART to the newer 16550/16550A chips. While they are pin-compatible, the 16550 series are a superset of the older chips and require additional connections not used in the older components. Some serial adapters made specifically for the older chips may not be able to operate properly with the newer chips.

ALT N M T L Lock DTE Baud Rate

When set to OFF, QMODEM 4.5 will set the serial port speed to the connect speed identified in the modem's CONNECT message. When ON, QMODEM 4.5 maintains the serial port speed defined in the phone book entry being dialed.

ALT N M T H High Speed Xmit

When set ON, QMODEM 4.5 uses an interrupt driven transmit routine for better performance. When set OFF, a "brute force" method of sending data is used (and as such, is a tad slower). Some UART-CPU combinations may not be able to handle the faster ON mode and you should leave this set OFF.

ALT N M T 1 16550 UART Enable

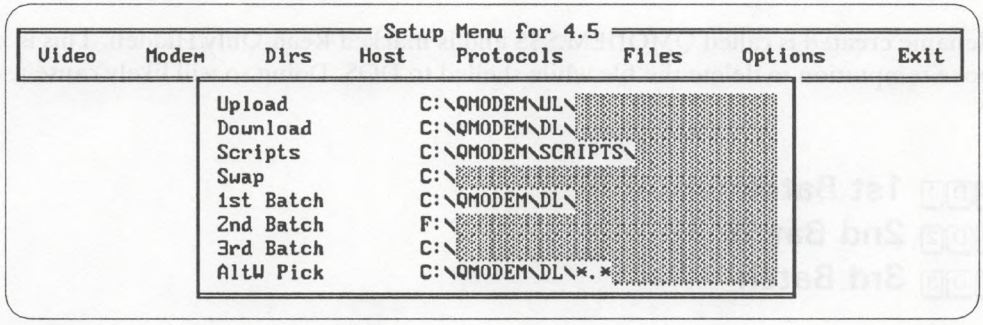
When set ON, QMODEM 4.5 enables the 16550 (and 16550A) FIFO Buffer for both transmit and receive. We can't imagine why you would want to disable this feature if you have the 16550, but here is the toggle anyway.

ALT N M T I Init Ignores CD

When set ON, the Modem Init String (ALT N M M I) will be sent on startup regardless of the detection of a Carrier. Some modems always default to reporting Carrier Detected (CD) until told to report the true state of carrier. Unfortunately, this causes a catch-22. QMODEM 4.5 paused asking whether or not to send the Modem Init if Carrier was present, and the Modem Init String may have a command to override this. If you have such a modem, you will surely appreciate this switch!

ALT N D Directories

QMODEM 4.5 directories are defined in the Directories Menu. When selected, the following window is displayed:



Note that all the fields in this menu are added and edited manually, following the procedures outlined earlier in this section.

ALT N D U Upload

The default drive:\directory which will be searched for files which are uploaded to the remote computer. If this field is left blank, the current directory will be searched. This directory will be displayed in the file allocation window following the PgUp upload command for non-batch protocols. If you exchange many files with remote computers, you may want to assign the same directory for uploads and downloads.

ALT N D D Download

The default drive:\directory into which downloaded files will be stored. If this field is left blank, files will be stored into the current directory. This directory will be displayed in the file allocation window following the PgDn download command. If you exchange

many files with remote computers, you may want to assign the same directory for uploads and downloads.

ALT N D S Scripts

The drive:\directory path which will be searched for all QMODEM 4.5 script files. If this directory is not defined correctly, scripts files will not be accessible.

ALT N D W SWAP

The drive:\directory path where the Shell to DOS will write a SWAP file if there is insufficient EMS memory, or EMS has been disabled (via ALT N O R E). If left blank, then the current drive:\directory will be used.

The filename created is called QMODEM.$$$ and is marked Read-Only/Hidden. This is to remove temptation to delete the file while shelled to DOS. Doing so will likely cause a lockup.

ALT N D 1 1st Batch
ALT N D 2 2nd Batch
ALT N D 3 3rd Batch

These three drive:\directories are the defaults for the ALT 6, Batch Entry Window. This is to save time if you are always doing Batch Uploads from the same directory or directories. For more information on how they are used, refer to the ALT 6 command.

ALT N D A ALT W Pick

This is the default drive:\directory\picture-mask for the ALT W command. You can set the default to your download directory, your word processor documents directory or even your spreadsheet WKS directory.

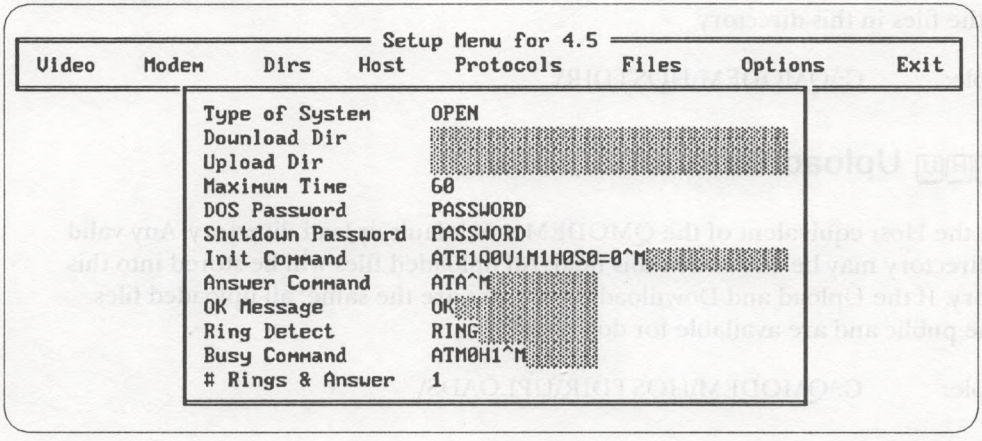
An example might be: C:\WORD\DOCS*.DOC

The above are all DEFAULT directories. Uploads, downloads, and script commands all use the standard File Allocation Window (FAW) which allows directory specifications to be changed before the commands are executed.

The Batch directories can also be overridden in the Batch Entry Window (BEW) at runtime.

ALT N H Host

If you plan on using QMODEM 4.5's Host Mode, be sure to read the Host documentation section completely. When the Host option is selected, the following menu is displayed:



The QMODEM 4.5 Host mode operates as a mini Bulletin Board System, complete with electronic messages, sysop chat, and file transfer capabilities.

ALT N H T Type of System

Press ENTER to cycle through the 3 possible settings: OPEN, CLOSED and CALLBACK.

An OPEN system is easiest to setup and get running. As new callers log in, the Host Password (.PWD) file is automatically updated. All new users are assigned a security level of 0 (zero).

In a CLOSED system, authorized callers' names and passwords must be defined in the Password file before callers are given access. If the caller's name is not on file, the Host issues a polite "Sorry, this is a closed system" message and hangs up.

CALLBACK mode is similar to a CLOSED system in that it requires the callers' name and passwords to be in the Password file. In addition, CALLBACK requires that the callers' DATA Phone Number also be on file. When callers log on successfully, they will be instructed to hang up and place their modem into Auto-Answer mode. The Host will then hang up and immediately dial the caller's data phone number. CALLBACK is a very secure system since it insures that all communications originate from known locations.

ALT N H D Download Dir

This is the Host Mode equivalent of the QMODEM 4.5 default download directory. Any valid DOS directory may be entered in this field. All files available for download from the Host must be stored in this directory. The Host "File List" command will produce a list of the files in this directory.

Example: C:\QMODEM\HOSTDIR\

ALT N H U Upload Dir

This is the Host equivalent of the QMODEM 4.5 default upload directory. Any valid DOS directory may be entered in this field. All uploaded files will be stored into this directory. If the Upload and Download directories are the same, all uploaded files become public and are available for download.

Example: C:\QMODEM\HOSTDIR\UPLOADS\

ALT N H M Maximum Time

This defines the maximum time allowed per call, in minutes. The default value is 60 minutes, or 1 hour. The maximum time allowed is 999 minutes (16 hours 39 minutes).

ALT N H O DOS Password

The password required to "Drop to DOS" from remote. If this field is left blank, all callers may drop to DOS.

ALT N H S Shutdown Password

Used to restrict access to the Host Shutdown command. It is strongly recommended that the Shutdown Password be unique and given out only to your most trusted friends. If the correct password is entered, the system hangs up immediately and Host mode is terminated.

ALT N H I Init Command

This command string is sent to the modem each time Host mode is initialized and after each call. The Host Initialization string should set Verbose result codes (Q0V1), no

Auto-Answer (S0=0), and on hook waiting for call (H0). The commands in parentheses are valid for Hayes and compatible modems.

[ALT][N][H][A] Answer Command

The Answer Command string is sent to the modem when an incoming call (RING) is detected. For Hayes and compatible modems, use the "ATA^M" command.

[ALT][N][H][K] OK Message

The modem returns an "OK" message when the last command was received and executed successfully. For Hayes and compatible modems, use "OK". For modems which do not return a response to the Initialization command, leave this field blank.

[ALT][N][H][R] Ring Detect

When an incoming call is detected by the modem, it returns a special "Ring Detect" message. For Hayes and compatible modems, this is the word "RING". When the ring detect message is received, the Host sends the Answer Command to the modem.

[ALT][N][H][B] Busy Command

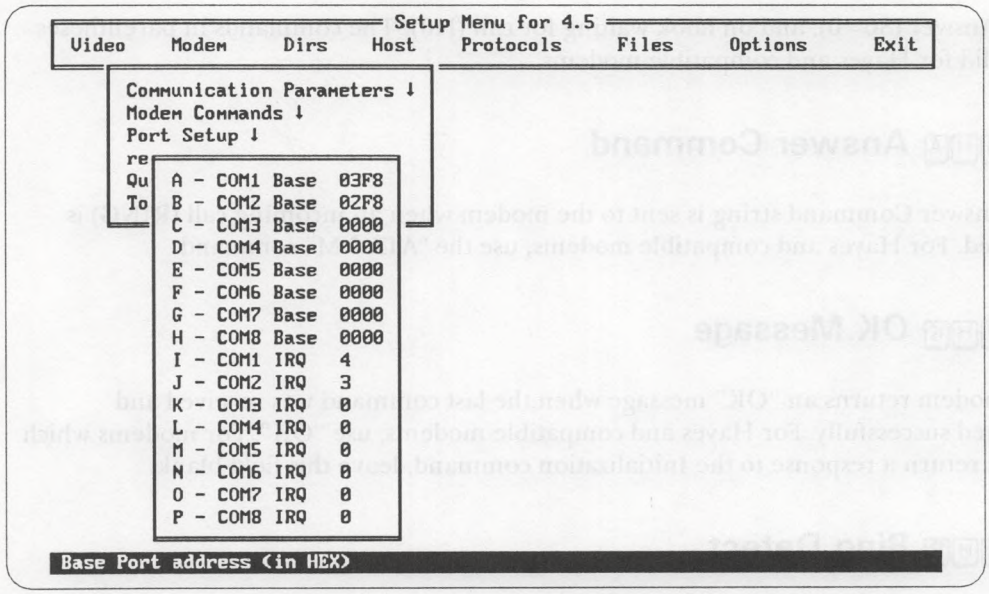
This allows you to place the modem Off-hook when you log in as the local Sysop. Your phone line will return a busy signal preventing callers from connecting to the host system.

[ALT][N][H][#] # Rings and Answer

This is exactly what it sounds like. The Answer command is sent after it received this many Ring Detect message. In layman terms, it counts the number of RINGS and then answers.

[ALT][N][P] Protocols

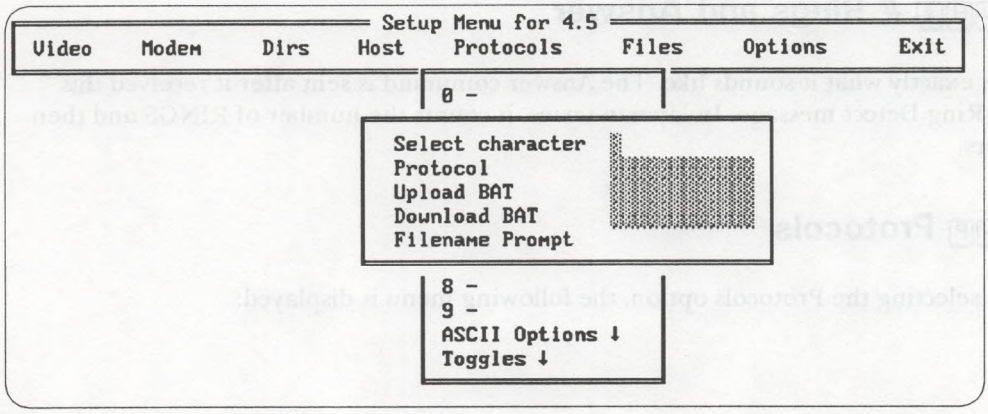
When selecting the Protocols option, the following menu is displayed:



The Protocols section allows you to customize QMODEM 4.5 by adding additional external transfer protocols. These protocols can then be called from an upload or download and used as if it were built into QMODEM 4.5. The ASCII Options are used for customizing the built-in ASCII transfer protocol. The Toggles menu handles Internal transfer protocol specifics.

ALT N P 0-9 Protocol Revisions

External protocols must be defined in numerical order; with no blanks between. When selecting a number from 0 to 9, the Protocol Definition window will be displayed:



The following fields must be defined for each external protocol:

ALT N P x S Select Character

The letter or digit used to select this protocol for a file transfer.

Characters A,X,C,R,O,Y,F,G and Z are internal protocol definitions. If you define an external protocol with one of these letters, it will disable the internal protocol.

ALT N P x P Protocol

The written name of the protocol as it will appear in the upload/download Protocol Selection Window.

ALT N P x U Upload BAT

The name of the upload batch file for the external protocol. In addition, be aware that four batch file parameters are passed as %1, %2, %3, and %4.

%1 Serial Port speed.	(Computer to Modem)
%2 Serial Port #	(Current COM Port number)
%3 Connect MSG speed	(as reported by Modem, CONNECT xxxxx)
%4 Filename	(if required. otherwise blank)

ALT N P x D Download BAT

The name of the download batch file for the external protocol. The same batch file parameters that are passed in the Upload Batch file are also passed to the Download Bat file.

ALT N P x F Filename Prompt

Specify "N" for external protocols which include filename as part of the transferred data (IE, Zmodem), and "Y" for protocols which must know the name of the file being received. When "Y" is specified, QMODEM 4.5 passes the filename to the download batch file as the 4th command-line parameter (%4).

QMODEM 4.5 passes the COM Speed, Serial Port #, current DTE Baud rate and the optional Filename to the protocol batch file as parameters %1, %2, %3 and %4 respectively.

Installing an external protocol

Because of their changing nature, and to insure that you use the latest versions, external protocol drivers are not distributed with QMODEM 4.5. We will use Zmodem as an example to illustrate the various steps required in installing an external protocol.

Files you will need:

1. The DSZ.COM program. Usually found on most BBS's as DSZmmdd.ARC. "mmdd" represent the release date of the current release.

   In the case of DSZ, new releases can appear on a daily or weekly basis; the one you downloaded today may be obsolete tomorrow.

2. The RZ.BAT (Receive Zmodem) batch file, used for Zmodem downloads.

3. The SZ.BAT (Send Zmodem) batch file, used for Zmodem downloads.

4. The DSZ.DOC documentation file without which you will be lost.

You may now select the first unassigned entry in the [ALT][N][P] menu. The Revise window will be displayed. Edit the fields to make the above example.

Next, edit the RZ.BAT file as follows, using the QMODEM 4.5 Internal Editor (or your own favorite):

```
Echo OFF

DSZ port %2 handshake on rz c:\qmodem\download
```

The download directory specified in the DSZ command line should match the download directory defined in the [ALT][N][D][D] setup menu. If none is specified, the file will be saved in the current directory.

Edit the SZ.BAT file as follows:

```
Echo OFF

DSZ port %2 handshake on sz %4
```

One last step . . . Make sure the DSZ.COM program is in your QMODEM directory or in a directory in the DOS PATH= so it is accessible by QMODEM 4.5.

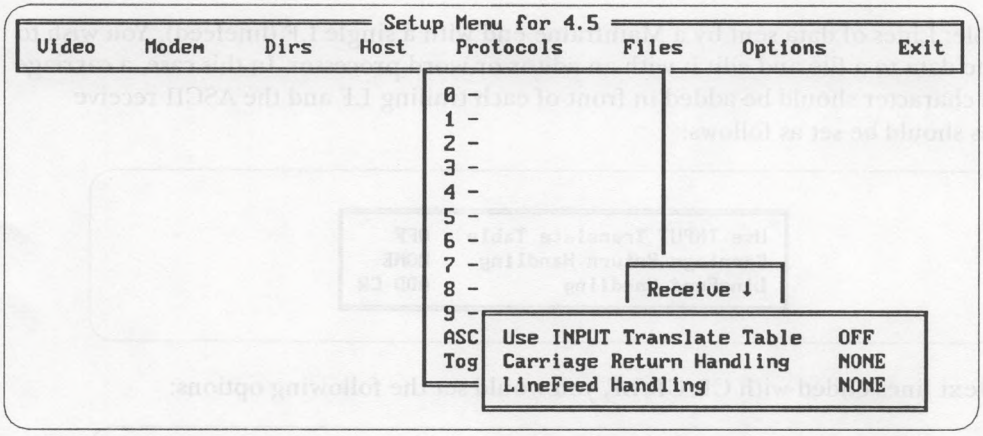
Installation of other external protocols is similar. Refer to the protocol documentation to insure that upload and download batch file commands are coded correctly.

ALT N P A ASCII Options

The ASCII Options are used to define the parameter which control ASCII (text) file transfers.

ALT N P A R ASCII Receive

When you select the ASCII Receive option, the following menu is displayed:



ALT N P A R U Use INPUT Translate Table

When ON, all incoming data will be translated. Translation criteria are defined in the ALT A INPUT Translate Table. If this parameter is OFF, the data is not translated and is received exactly as it was sent.

ALT N P A R C Carriage Return Handling

This option has three setting:

NONE	No special treatment of the CR. (Decimal 13)
STRIP	All CR's are removed from the file as it is saved.
ADD LF	Adds a trailing LF (Decimal 10) after each CR.

ALT N P A R L LineFeed Handling

This option also has three settings:

NONE	No special treatment of LF. (Decimal 10)
STRIP	All LF's are removed from the file as it is saved.
ADD CR	Adds a CR (Decimal 13) before each LF.

Example: Lines of data sent by a Mainframe end with a single LF (linefeed). You wish to save the data to a file and edit it with an editor or word processor. In this case, a carriage return character should be added in front of each trailing LF and the ASCII receive options should be set as follows:

```
Use INPUT Translate Table    OFF
Carriage Return Handling     NONE
LineFeed Handling            ADD CR
```

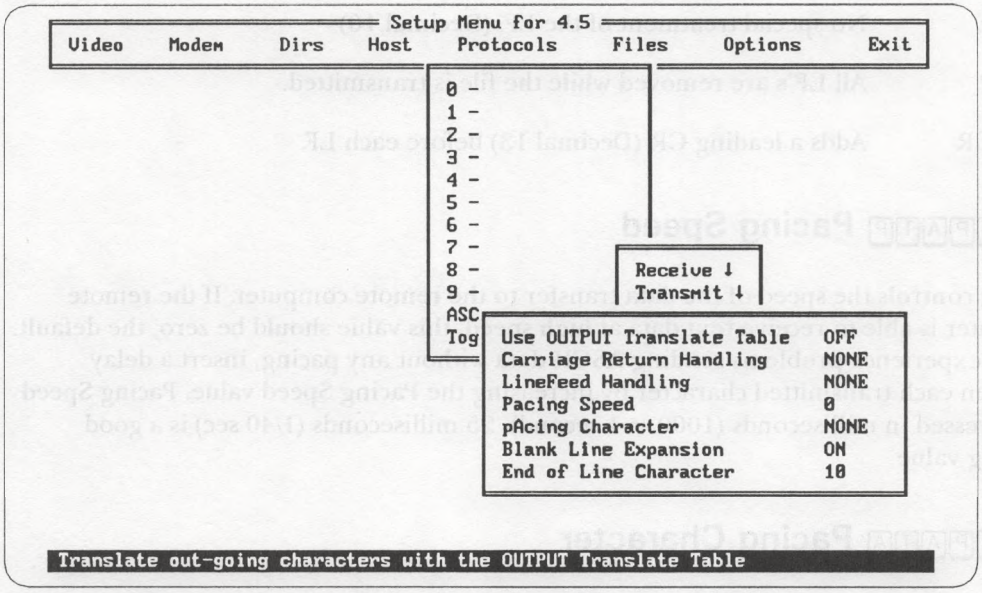
If the text lines ended with CR/CR/LF, you would set the following options:

```
Use INPUT Translate Table    OFF
Carriage Return Handling     STRIP
LineFeed Handling            ADD CR
```

The above options will remove (strip) both incoming CR, and add a leading CR to each LF (exactly what the doctor ordered!)

ALT N P A T ASCII Transmit

When the ASCII Transmit options is selected, the following menu is displayed:



ALT N P A T U Use OUTPUT Translate Table

When set to ON, outgoing data is translated. Translation criteria are defined in the ALT A OUTPUT Translate table. When OFF, the data is not translated and is sent "as is".

ALT N P A T C Carriage Return Handling

This option has three settings:

NONE	No special treatment of the CR. (Decimal 13)
STRIP	All CR's are removed while the file is transmitted.
ADD LF	Adds a trailing LF (Decimal 10) after each CR.

ALT N P A T L LineFeed Handling

This option also has three settings:

NONE	No special treatment of the LF. (Decimal 10)
STRIP	All LF's are removed while the file is transmitted.
ADD CR	Adds a leading CR (Decimal 13) before each LF.

ALT N P A T P Pacing Speed

Pacing controls the speed of the data transfer to the remote computer. If the remote computer is able to receive text data at high speed, this value should be zero, the default. If you experience problems sending ASCII data without any pacing, insert a delay between each transmitted character by increasing the Pacing Speed value. Pacing Speed is expressed in milliseconds (1000 = 1 second). 25 milliseconds (1/40 sec) is a good starting value.

ALT N P A T A Pacing Character

If a pacing character is specified, QMODEM 4.5 will wait until that character is received before it sends the next line of text. If NONE is specified, the transfer will not pause between lines of text. Use this only when you are sure that the remote system always prompts for each line of text with the same character. To change the setting, use the Up and Down arrow keys to move through the ASCII character set and press ENTER when the desired character is displayed.

In some cases, you may want to control transmission pacing yourself. QMODEM 4.5 allows you to do just that by setting the pacing character to ASCII 255 (or any other character which you know will not be received by the other system). When QMODEM 4.5 pauses after sending each line, press any key to send the next line. Repeat this procedure until the entire file has been transmitted.

See also: End Of Line Character.

ALT N P A T B Blank Line Expansion

This option controls whether or not blank lines (lines which only contain a CR and/or LF and no other text) should be expanded to include at least one SPACE as a leading character.

Many online systems and BBS's interpret a blank line, as defined above, as an end-of-message indication. If your text contains blank lines, the first one will cause the other system to stop receiving message text, issue an end-of-message prompt, and wait for your input. Since additional message text is still being sent, unpredictable results can occur. Setting Blank Line Expansion ON will eliminate this problem.

ALT N P A T E End Of Line Character

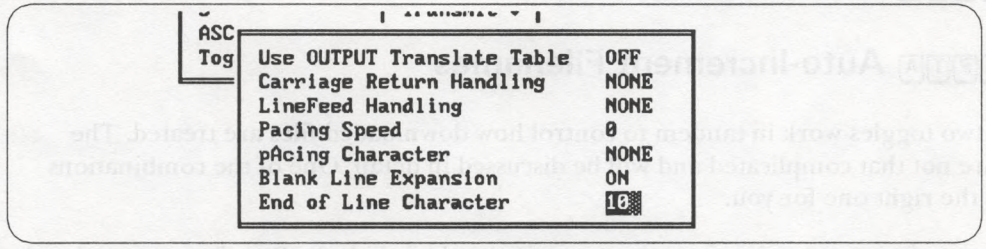
Often referred to as EOL, this is the character that your text editor uses as the last character in a line. Most often (IE., with the QMODEM 4.5 Internal Editor), this is a LineFeed character (ASCII 10), which is usually preceded by a Carriage Return (ASCII 13). If your text editor or word processor uses a different EOL character, you should define it here.

Setting this value incorrectly results in a jerky or incomplete transmission.

Example:

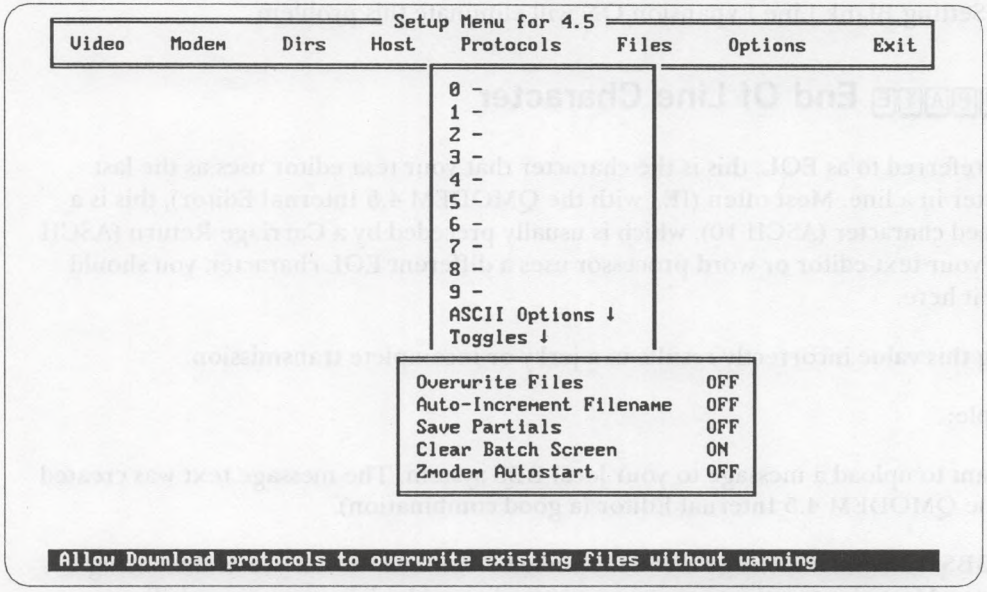
You want to upload a message to your local BBS system. The message text was created with the QMODEM 4.5 Internal Editor (a good combination).

Most BBSs start each message line with a colon ":", which we can use as the pacing character. Most also terminate message entry when a blank line is received. To successfully upload the message, the ASCII transmit options should be set as follows:



ALT N P T Protocol Toggles

These are toggles specific to the file transfer protocols. The menu looks like this:



ALT N P T O Overwrite Files

ALT N P T A Auto-Increment Filenames

These two toggles work in tandem to control how downloaded files are treated. The rules are not that complicated and will be discussed in detail. One of the combinations will be the right one for you.

To keep confusion to a minimum, the exception to the rule is the Zmodem protocol and will be discussed in a moment.

When you are prompted for a filename in one of the download protocols, a check is made to see if the file already exists. If it does, the Auto-Increment flag is checked. If it is set ON, then the filename entered gets incremented and the transfer begins.

If the Auto-Increment flag is set OFF, then the Overwrite Files flag is checked. If this is set ON, the existing file is deleted and the transfer begins. If it is set OFF, then you will be prompted for a different filename before the transfer can begin.

The Exception to the rule: Zmodem

When downloading using any protocol except Zmodem (yes, there is always an exception to the rule), the Auto-Increment flag is checked first, and then the Overwrite flag. With Zmodem, there is another possibility called Crash Recovery. This will override the above mentioned flags under certain specific conditions.

If the file you are downloading already exists and the file on disk is smaller than the one being downloaded, there is a possibility that the file on disk is a Partial (see below). Zmodem then attempts to use Crash Recovery to pick up where the you left off.

If it turns out that the two files are not the same, then the original rules apply. IE. A check of the Auto-Increment flag, and then the Overwrite if Auto-Increment is OFF. If Overwrite is also OFF, the file is SKIPPED by the Zmodem download.

[ALT][N][P][T][S] Save Partials

A Partial is created when the Save Partials flag is set ON and a download aborts. The portion that has been received successfully is not deleted. If it is set OFF, then any partially downloaded file is erased when the transfer aborts.

[ALT][N][P][T][C] Clear Batch Screen

This is the only toggle that deals with Uploads. All the others affect Downloads. One of the new features in QMODEM 4.5 is support for Batch Uploads. The Batch Entry Window (BEW) has the ability to retain the entered information so you can do the same batch upload to several different systems without retyping the entire BEW screen.

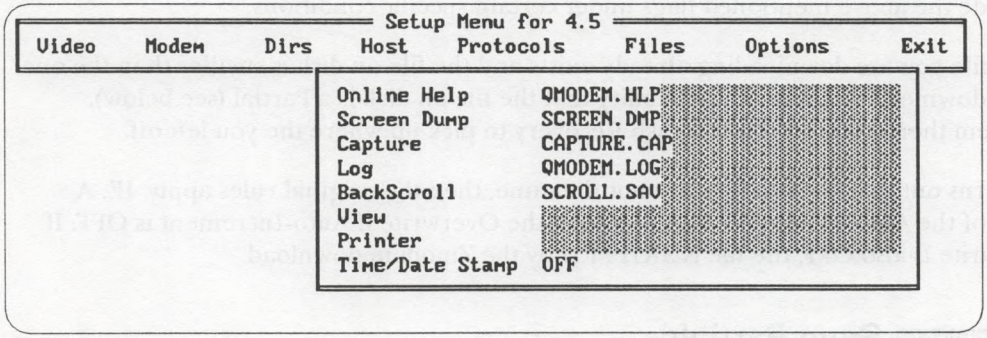
When a Batch upload completes, this flag is checked to see if the BEW information should be cleared. The default is ON. Even if you leave this set OFF, you can still clear the old information in the BEW with a press of the F4 key.

[ALT][N][P][T][Z] Zmodem Auto-Start

Zmodem Autostart When this parameter is ON, Zmodem file downloads are started automatically whenever a Zmodem download transfer header is received. If this parameter is OFF, Zmodem downloads must be started manually with the PgDn command.

ALT N F Files

QMODEM 4.5 requires access to specific files and programs which must be defined in the Files menu:



ALT N F O Online Help

This is the QMODEM 4.5 online help file, distributed as part of the QMODEM 4.5 program. The default name for this file is QMODEM.HLP.

If you use QMODEM 4.5 from different subdirectories, then you should edit this and include the full drive:\directory where the HLP file is located.

Example: C:\QMODEM\QMODEM.HLP

ALT N F S Screen Dump

This is the file to which QMODEM 4.5 screen dumps (ALT T) are saved. QMODEM 4.5 automatically appends the .DMP suffix to the specified filename if one is not included.

Example: C:\QMODEM\SCREEN.DMP

ALT N F C Capture

This is the file where session data is recorded when Capture (CTRL HOME) is ON. QMODEM 4.5 automatically appends the .CAP suffix to the filename if one was not specified.

Example: C:\QMODEM\CAPTURE.CAP

[ALT][N][F][L] Log

This is the file where QMODEM 4.5 logs all activity. The QMODEM 4.5 Log can be started automatically ([ALT][N][O][T][U] — aUto Log Start) or explicitly with the [ALT][O] command. QMODEM 4.5 automatically appends the .LOG suffix to the filename if one was not specified.

Example: C:\QMODEM\QMODEM.LOG

[ALT][N][F][B] Back-scroll

This is the file to which the scroll-back buffer is copied. QMODEM 4.5 does not assign a default suffix to this file.

Example: C:\QMODEM\SCROLL.SAV

[ALT][N][F][V] View

This is the path and filename of the program which is executed by the [ALT][V] command. Any valid program can be executed by [ALT][V], making this a powerful function.

Example: C:\UTIL\LIST

Two special keywords may also be specified as a View option: @FSE and @EDITOR. If @FSE if specified, the QMODEM 4.5 Internal Editor will be used for all file viewing and editing.

Example: @FSE

The @EDITOR keyword, if specified, causes the QMODEM 4.5 Internal Editor to be replaced with an external program of your choice.

Example: @EDITOR QEDIT

If "@EDITOR" is not specified, the QMODEM 4.5 Internal Editor will be used for internal editing of scripts or note files attached to phone book entries.

NOTE: The @EDITOR and @FSE commands should always be followed by a space. (as shown in the above examples).

ALT N F P Printer

This is the default used when specifying a printer. It can be a printer device such as PRN, LPT1, or LPT2. Or, it can also be a drive:\path\filename like the others in this menu. If left blank, it will default to PRN (the default DOS printer).

Example: PRN

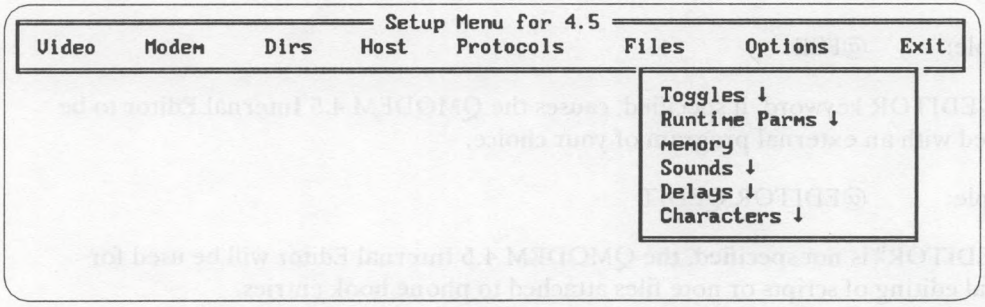
NOTE: QMODEM 4.5 will append new data to the screen dump, capture, log, and back-scroll files if they exist. If they do not, a prompt for their creation will be displayed when the corresponding command is issued. File names may be changed when these recording features are invoked.

ALT N F T Time/Date Stamp

This toggle does not have a separate sub-menu. (what? for only one toggle? nah . . .) When set ON, the Screen Dump, Capture and Scroll back files will have Time and Date Stamp headers placed above the appended data. This is appended each time the file is opened, not between each line added to the file. When set OFF, no header is placed before the appended data.

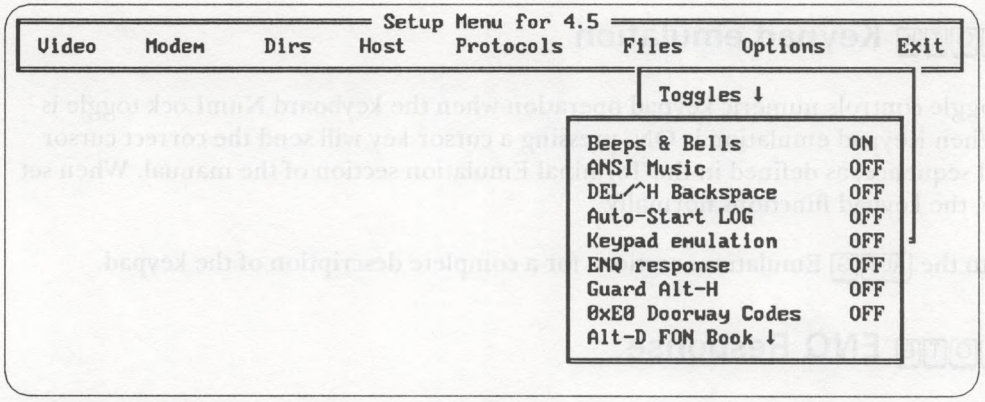
ALT N O Options

The Options Menus define run-time parameters which control the operation of QMODEM 4.5. These parameters fall into the following categories:



ALT N O T Options Toggles

Toggles is a list of feature switches which control the remaining toggles that do not fit under Video, Modem or Protocols. The menu looks like this:



ALT N O T B Beeps & Bells

Activates or deactivates the QMODEM 4.5 audible signals produced when connecting to another computer, or at the completion of a file transfer. This toggle can be changed with the ALT B command.

ALT N O T A ANSI Music

Setting this ON will permit QMODEM 4.5 to play ANSI music if found in the incoming data stream. This toggle can be changed via the ALT M command.

ALT N O T D Del/^H Backspace

This toggle defines the character which is generated when the BACKSPACE key is pressed. When OFF, a ^H (standard backspace character) is generated. When ON, a DEL is generated. This toggle can be changed via the ALT 1 command.

Pressing CTRL Backspace will send the reverse of this toggle. For example, if ON, ^backspace will send a ^H character.

ALT N O T U Auto Start Log

When this toggle is ON, QMODEM 4.5 will automatically record activity in the LOG file defined in ALT N F L when first started. If set to OFF, activity logging must be started explicitly with the ALT 0 command.

[ALT][N][O][T][K] Keypad emulation

This toggle controls numeric keypad operation when the keyboard NumLock toggle is ON. When Keypad emulation is ON, pressing a cursor key will send the correct cursor control sequence, as defined in the Terminal Emulation section of the manual. When set to OFF, the keypad functions normally.

Refer to the [ALT][G] Emulations sections for a complete description of the keypad.

[ALT][N][O][T][E] ENQ Response

This toggle controls the action taken when an ENQ ^E is received. If set ON, then the contents of Function Key [ALT][F12] is sent out the serial port. When set OFF, the ^E is processed as a normal incoming character. Refer to the [ALT][J] command on editing the text for [ALT][F12].

This toggle can act as ENQ/ACK flow control. If the characters ^F are stored in [ALT][F12] and this is set ON, then every time the remote system sends the ENQ, an ACK (^F) will be sent back.

[ALT][N][O][T][G] Guard [ALT][H]

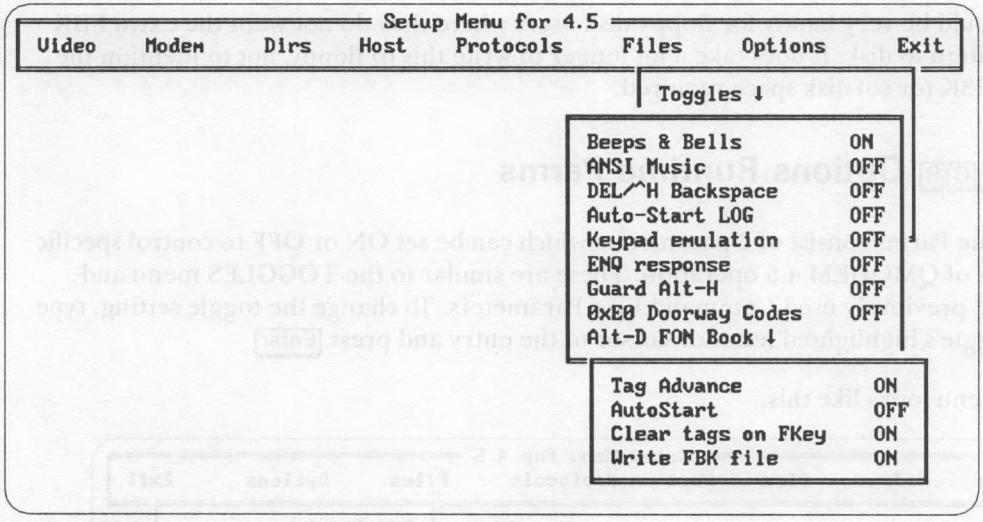
This toggle controls how the [ALT][H] Hangup command is processed. If this is set ON and press [ALT][H] a window will open confirming your wanting to hangup. When set OFF, the Hangup command is acted upon immediately.

[ALT][N][O][T][0] 0xE0 Doorway Codes

This toggle controls whether or not the enhanced 101-key E0 (hex) codes are transmitted. When set ON, the special 3-byte code is sent for any of the enhanced keys. When set OFF, the E0 keys are converted to their 84-key keyboard equivalent.

[ALT][N][O][T][F] [ALT][D] FON Book

The [ALT][D] FON Book menu was created under Toggles to make it easy to find all the toggles relating to the [ALT][D] command. The menu looks like this:



ALT N O T F T Tag Advance

When set ON, tagging entries with the SPACBAR in ALT D will make the Scrollbar move down to the next entry. When set OFF, the Scrollbar does not move automatically.

ALT N O T F A Auto Start

When set ON, QMODEM 4.5 will come up in the ALT D screen initially. When set OFF, the TERMINAL mode is the default screen.

If you start QMODEM 4.5 with the /S= or /HOST command line options, the Auto Start toggle is ignored and defaults to OFF.

ALT N O T F C Clear tags on FKey

When set ON, using one of the FKeys to tag and dial will do an implied U- Untag All command first. When set OFF, pre-existing tags remain, and any new tags are added.

ALT N O T F W Write FBK File

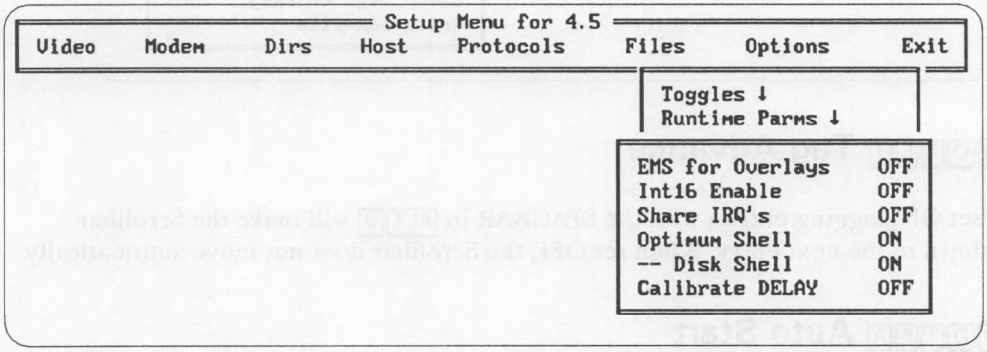
When set ON, any changes to the FON book will result in writing an FBK Backup file to disk. This Backup is the same size as the original. When set OFF, no FBK file is written to disk.

This could be very handy for floppy disk users where they do not want the extra FBK file written to disk. It does take a lot longer to write this to floppy, not to mention the extra 23K (or so) disk space required.

[ALT][N][O][R] Options Runtime Parms

Runtime Parms consist of 6 parameters which can be set ON or OFF to control specific aspects of QMODEM 4.5 operation. These are similar to the TOGGLES menu and replace previously used Command Like Parameters. To change the toggle setting, type the toggle's highlighted letter or cursor to the entry and press [Enter]

The menu looks like this:



[ALT][N][O][R][E] EMS for Overlays

This controls whether or not to use EMS memory in QMODEM 4.5. If set ON, the QMODEM.OVR file will be loaded into EMS memory. Also, EMS memory will be used to store the SWAP file (see [ALT][N][D][S]) when shelling to DOS.

Use of EMS memory will significantly improve performance by eliminating overlay-related disk activity. The amount of EMS memory required to store the Overlay is slightly higher than the size of the QMODEM.OVR file. Other aspects of QMODEM 4.5 may draw on the available EMS memory as needed.

[ALT][N][O][R][I] Int16 Enable

When set ON, QMODEM 4.5 uses an internal Interrupt 16 handler to access the 101-key enhanced keyboards. This usually allows the [F11] & [F12] keys to be used if they are present. When set OFF, the normal DOS interrupt handler is used and you will not

be able to use the F11 & F12 keys. Some keystrokes in QMODEM 4.5 do require this to be set ON to be used. F11 & F12 have already been mentioned. ALT ENTER, to toggle the Status Line information is another.

If you do not have an enhanced keyboard, or the BIOS does not support one, you cannot toggle this to the ON position.

ALT N O R S Share IRQ's

When ON, QMODEM 4.5 will correctly share interrupts on PS/2 and EISA bus equipped computers. When set OFF, QMODEM 4.5 will not pass interrupts on to the previous interrupt handlers if any were present. If you are running a PC, XT or AT based system, then this should be set OFF.

ALT N O R O Optimum Shell

When ON, QMODEM 4.5 will attempt to remove all but 5K of itself from memory before all shell operations (external transfer protocols, ALT R drop to DOS, etc.) If the EMS USAGE is set ON, then it first tries to store the copy into EMS memory. If there is not enough free EMS or the EMS USAGE is OFF, then it tries to swap to DISK. If there is not enough DISK space, the
Optimum Shell is disabled.

ALT N O R D Disk Shell

This toggle works only when the Optimum Shell toggle is set ON. If OFF, this toggle has no effect. Assuming the Optimum Shell is ON, this toggle controls whether or not the Swap file can be placed on Disk.

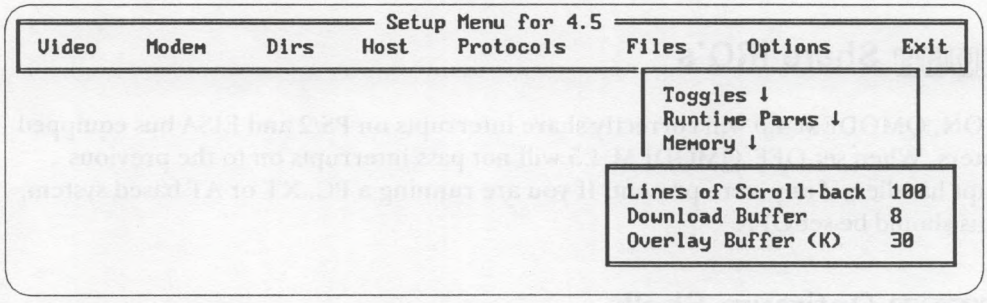
If ON, then a Disk file will be attempted if you have insufficient EMS memory to hold the Swap file (or the Use EMS toggle is set OFF). If OFF, and you have run out of EMS, then the Optimum Shell is disabled.

ALT N O R C Calibrate Delay

Calibrate DELAY When set ON, the internal timer routine will automatically calibrate itself periodically. This could be necessary if running under multitaskers or running on a network server. (the latter is strongly discouraged however).

ALT N O M Options Memory

QMODEM 4.5 allows user-specified memory allocations for three storage areas: The scroll-back buffer, the download buffers and the Overlay memory allocation. These values can be changed to meet varying requirements.



ALT N O M L Lines of Scroll-back

Memory is allocated as the maximum number of lines which can be stored in the Scroll-back buffer. Values from 0 to 1000 are valid.

ALT N O M D Download Buffer

Downloaded data is stored into the download buffer. When the buffer is full, it is copied to disk. Each buffer is 128 bytes, and from 8 to 240 buffers can be allocated. When receiving to a fast hard disk or to a RAM disk, use the smallest allocation (8). A low allocation when downloading to a diskette will reduce transmission efficiency. Large allocation are at the expense of system RAM.

ALT N O M O Overlay Buffer

The default value is 30K. Increasing this value will reduce disk activity during the loading of program overlay files at the expense of memory. Anything above around 64K is just wasting disk main memory.

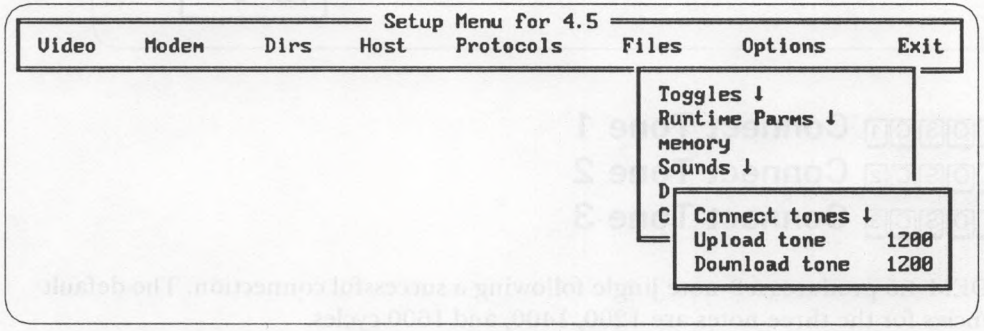
If QMODEM 4.5 seems slow, this value should be increased in 5-10K increments until execution speed is satisfactory.

Memory available to QMODEM 4.5 may vary greatly depending on the operating system's own requirements, and resident programs (TSRs) loaded. If QMODEM 4.5 is

unable to find sufficient memory, it will re-allocate it using a best-fit algorithm and will issue a warning message to that effect.

ALT N O S Options Sounds

QMODEM 4.5 can generate various sounds to signal a successful connect or the completion of a file transfer. Whether or not sounds are generated is controlled by the ALT N O T B toggle, or the ALT B command in terminal mode. These sounds can be customized in the Options Sounds menu:

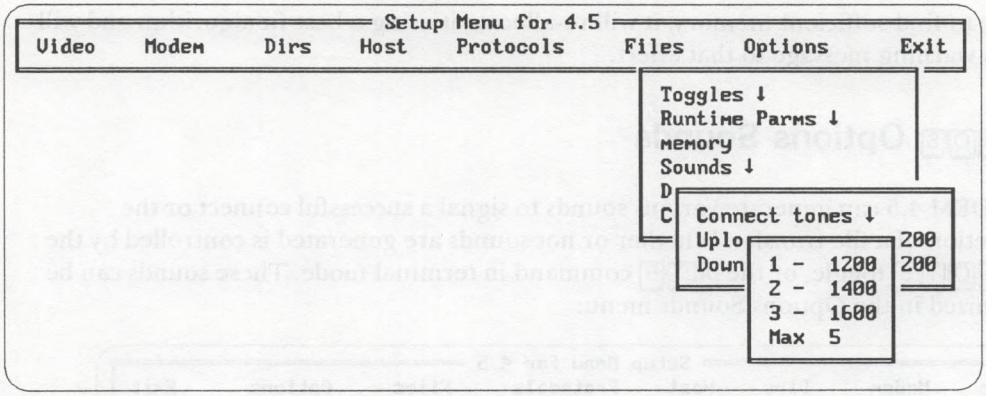


ALT N O S C Options Sounds Connect Tones

This multi-note jingle has its own custom menu.

ALT N O S U Upload tone
ALT N O S D Download tone

This is the frequency in Hertz of the beeps that are produced at the completion of each file transfer. A sample will be heard as you change these. The default frequency for the file transfer completion tones is 1200 Hz



ALT N O S C 1 Connect Tone 1
ALT N O S C 2 Connect Tone 2
ALT N O S C 3 Connect Tone 3

QMODEM 4.5 produces a 3-note jingle following a successful connection. The default frequencies for the three notes are 1200, 1400, and 1600 cycles.

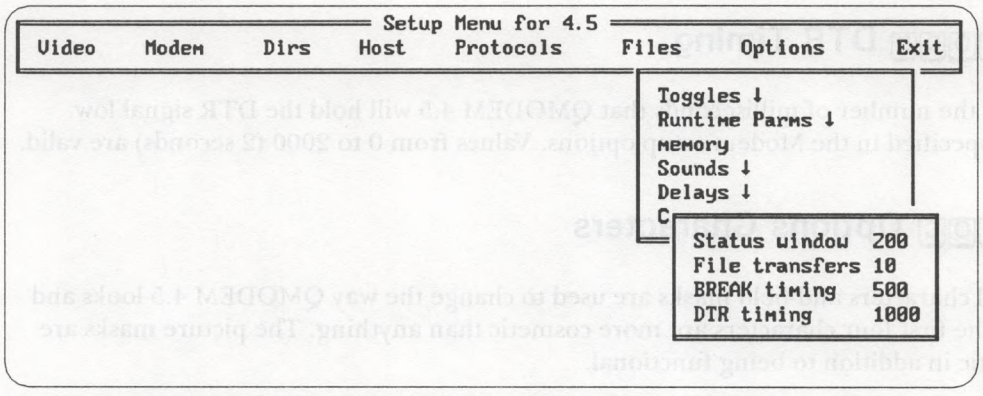
These can be changed to suit your taste. All 3 notes are played following each change. To change a value, type the desired number, type in the new value, and press ENTER.

ALT N O S C 3 Max Repeats

This entry is under the Connect Tones menu. It controls the maximum number iterations of the Connect tones when you get connected via the ALT D Phone Book. Remember, this is the maximum number. You can always cancel the tones with a press of any key.

ALT N O D Options Delays

Delay values affect the timing of certain QMODEM 4.5 operations:



ALT N O D S Status Windows

Most toggles or immediate commands have an accompanying window showing the change in QMODEM 4.5's status. The value in this field, expressed in hundredths of a second, controls the duration of time these status windows are displayed.

The default is 300, for a 3 second duration.

ALT N O D F File Transfers

File transfer errors such as Short/Long blocks can occur on high-speed, buffered modems when the COM port rate is fixed at a high value. Adding a file transfer delay of up to 20 seconds (or more, depending on the system you are communicating with) will correct this problem.

This should be set to a non-zero value any time the serial port baud rate exceeds the actual connect baud rate.

ALT N O D B BREAK Timing

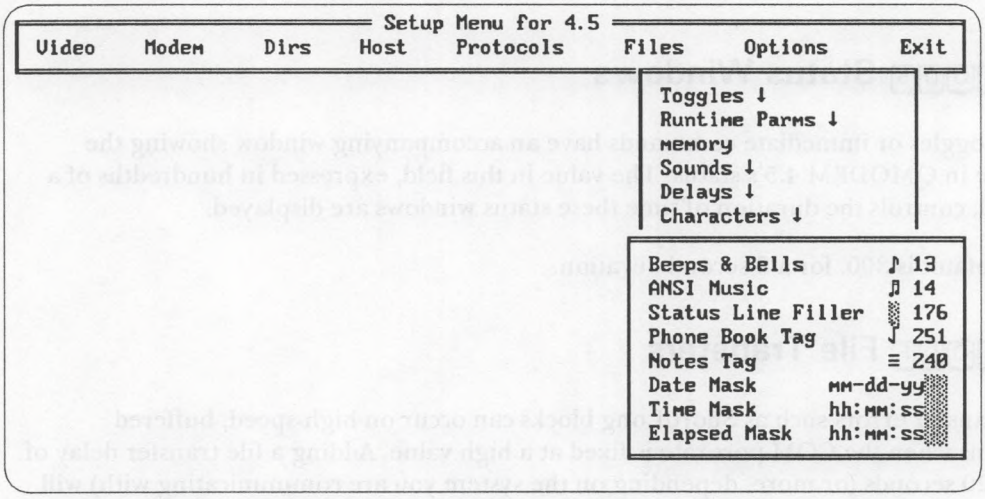
This is the number of milliseconds that QMODEM 4.5 will hold the BREAK signal high when CTRL END is pressed or specified in the Dialing setup options. Values from 0 to 2000 (2 seconds) are valid.

ALT N O D D DTR Timing

This is the number of milliseconds that QMODEM 4.5 will hold the DTR signal low when specified in the Modem setup options. Values from 0 to 2000 (2 seconds) are valid.

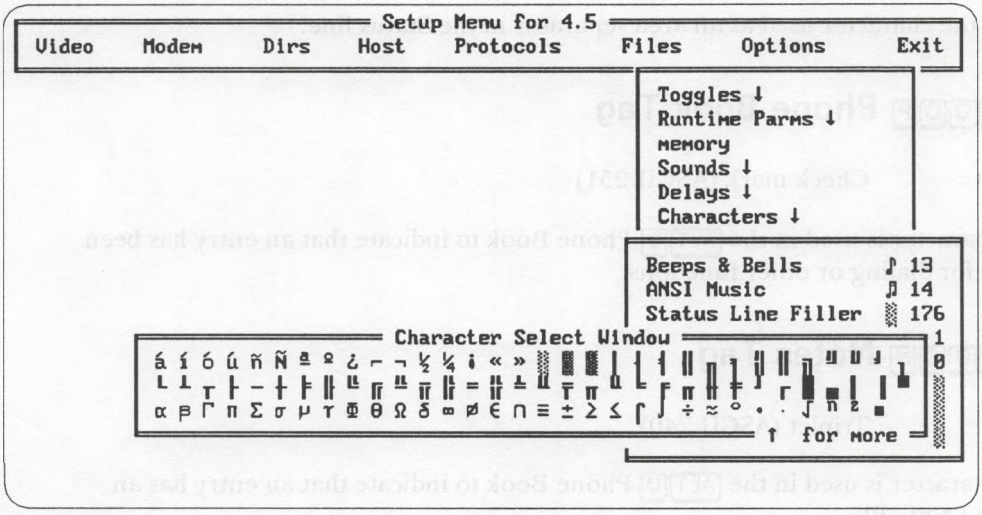
ALT N O C Options Characters

Special characters and field masks are used to change the way QMODEM 4.5 looks and acts. The first four characters are more cosmetic than anything. The picture masks are cosmetic in addition to being functional.



To change a separator or indicator value, select the desired character and press the direction keys to select another character values. When the desired character is highlighted, press Enter. Press ESC to leave the character as it was.

The Character Select Pick List looks like this:



ALT N O C B Beeps & Bells

Default: Single note (ASCII 13)

This also happens to be the Decimal representation of a carriage return so it cannot be accurately represented in this document. This is the character used in the Status line to show that the Beeps & Bells is toggled ON.

You may want to change this to another character to prevent problems with the DOS Print Screen function if you like to use the PrtSc key!

ALT N O C A ANSI Music

Default: Double note (ASCII 14)

This is the character used in the status line to show that ANSI Music is toggled ON.

You may want to change this to another character to prevent problems with the PrtSc function. The double musical note character causes Epson and compatible printers to switch to compressed print mode.

ALT N O C S Status Line Filler

Default: Hash block (ASCII 176)

This is the character used as an area separator in the Status line.

ALT N O C P Phone Book Tag

Default: Check mark (ASCII 251)

This character is used in the ALT D Phone Book to indicate that an entry has been tagged for dialing or other functions.

ALT N O C N Notes Tag

Default: Triplet (ASCII 240)

This character is used in the ALT D Phone Book to indicate that an entry has an attached Note file.

ALT N O C D Date Mask
ALT N O C T Time Mask
ALT N O C E Elapsed Mask

To allow the maximum amount of flexibility and to insure that the DATE, TIME and ELAPSED TIME routines can be used internationally, you can specify a picture mask to indicate how a given string should be formatted.

For example, let's say that a date variable contains January 2, 1990 and you want to display it. There are several possible picture masks you could use:

Picture	Result
mm/dd/yy	01/02/90
MM/dd/yy	1/02/90(note the Case difference)
m/dd/yyyy	01/02/1990
mm-dd-yyyy	01-02-1990
dd/mm/yyyy	02/01/1990
DD-mm-yyyy	2-01-1990

In Picture masks, the CASE of the letters is significant. If the letter are Upper case, then any leading zeros are substituted for the SPACE character. If the letters are lower case, then leading zeros are left in place. This applied for both DATE and TIME masks.

Time strings are handled in a similar fashion, except that special formatting characters are available for working with times in am/pm (12-hour) format as well as military (24-hour) format.

For example, lets say it is 1:02pm and you want to display this in a different format. Here are some possible picture masks:

Picture	Result
hh:mm:ss	13:02:00
hh:mm	13:02
hh:mm te	01:02 pm
HH:mmt	1:02p
HH:mm:ss	13:02:00(note the Case difference)
HH:mm:sste	1:02:00pm

Note that string representations of time are always assumed to be in military format unless a 't' appears in the picture mask. An 'e' (em) in the mask should always be accompanied by a corresponding 't' (time).

Now that you have a general idea of what picture masks do, let's look at the characters that can appear in them. The following special characters are meaningful in masks:

Char is replaced by	
'm', 'M'	Month(date fields only)
'd', 'D'	Day(date fields only)
'y' Year	(date, notice 'Y' is a literal)
'h', 'H'	Hour(time fields only)
'm', 'M'	Minutes(time fields only)
's', 'S' Seconds	(time fields only)

't' 'p' or 'a'	(time dependant)
'e' 'm'	(usually follows the 't')

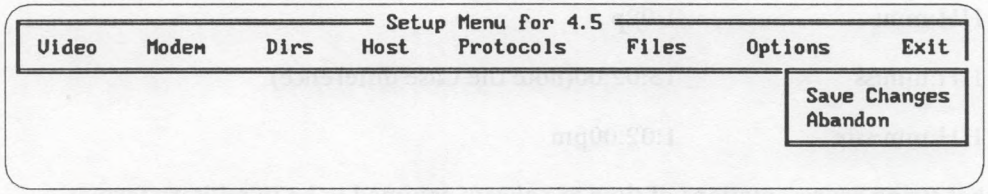
Any character other than shown above is treated as a literal and displayed without substitution.

Elapsed times use the same format as regular Time masks. However, most of the elapsed times count from 00:00:00 as a base. Therefore, it is recommended that you do not include the t or e codes to make it use 12-hour am/pm format.

ALT N E Exit

You should always exit the Setup Menu with this option if you want changes to be saved in the QMODEM 4.5 configuration file.

The Configuration Exit Menu has two options:



ALT N E S Save Changes

Save the changes to the QMODEM.CNF file and exit.

ALT N E A Abandon

Leave the configuration menu and do not save the changes. Pressing ESC while at the main menu level has the same effect. This allows changes to be tested before being saved with ALT N S.

Chapter 4

Operation

"One sees great things from the valley; only small things from the peak"

G.K. Chesterton

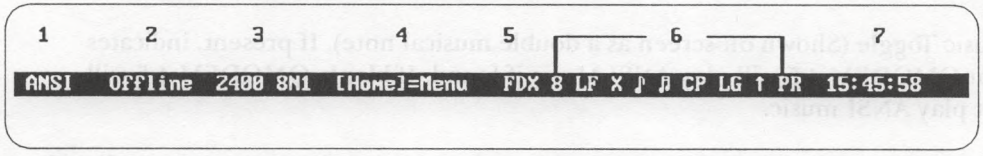
In this Chapter...

- How to get started
  What is terminal mode?
- The Status Line
  Notes on the active session
- Commands
  Alt command structure

QMODEM 4.5 COMMANDS

THE STATUS LINE

While in terminal mode, QMODEM 4.5 displays many of its operational settings in the Status Line at the bottom of the screen:



Some of the special characters used in the status line are unprintable and may cause erratic printer behavior. These characters were changed to insure proper printing.

The status line is divided into the following areas:

1: The terminal emulation in effect. In the above example, ANSI emulation is active.

2: The Online/Offline indicator. When connected to another computer, the word "Online" will be displayed in this area. When QMODEM 4.5 is first started, this indicator should read "Offline". It could also display either "DOORWAY" or "doorway" if the [ALT][=] toggle is set ON. The upper case Doorway means you are Online, while lower case means you are Offline.

3: The current communication parameters: Baud Rate, Data Bits, Parity, and Stop Bits. These values will change to reflect changes made with the [ALT][P] command, or to reflect the values defined in the Dialing directory for each number.

4: A short reminder to press the Home key to view the Main Help Menu, which shows all available commands. Summary help on any QMODEM 4.5 command may be obtained directly from the Main Menu as well.

5: The current Duplex (a.k.a. Echo) state. FDX stands for Full Duplex and HDX stands for Half Duplex. Refer to the [ALT][E] command for a full explanation of Duplex mode.

6: The current state of QMODEM 4.5 Toggles. There are 9 toggles, from left to right:

8 Hi-bit strip toggle. A "7" means that the high bits are stripped, and an "8" means all bits are used.

LF Add Linefeed Toggle. If "LF", a Linefeed will be added to all incoming Carriage Returns. If disabled, this area will be blank.

X XON/XOFF toggle. If "X", Xon/Xoff flow control is active. If this area is blank, Xon/Xoff flow control is ignored by QMODEM 4.5.

B Beeps & Bells Toggle (Shown on-screen as a single musical note). If present, indicates that QMODEM 4.5 will generate sounds on the PC's speaker when specific conditions are met. If this is blank, QMODEM 4.5 produces no sounds.

M Music Toggle (Shown on-screen as a double musical note). If present, indicates that QMODEM 4.5 will play ANSI Music if found. If blank, QMODEM 4.5 will not play ANSI music.

CP Capture Buffer Toggle. If present, indicates that text is being captured to a file. If blank, incoming text is not captured.

LG Session Log Toggle. If present, indicates that the Session LOG is active. If blank, the session LOG is not active.

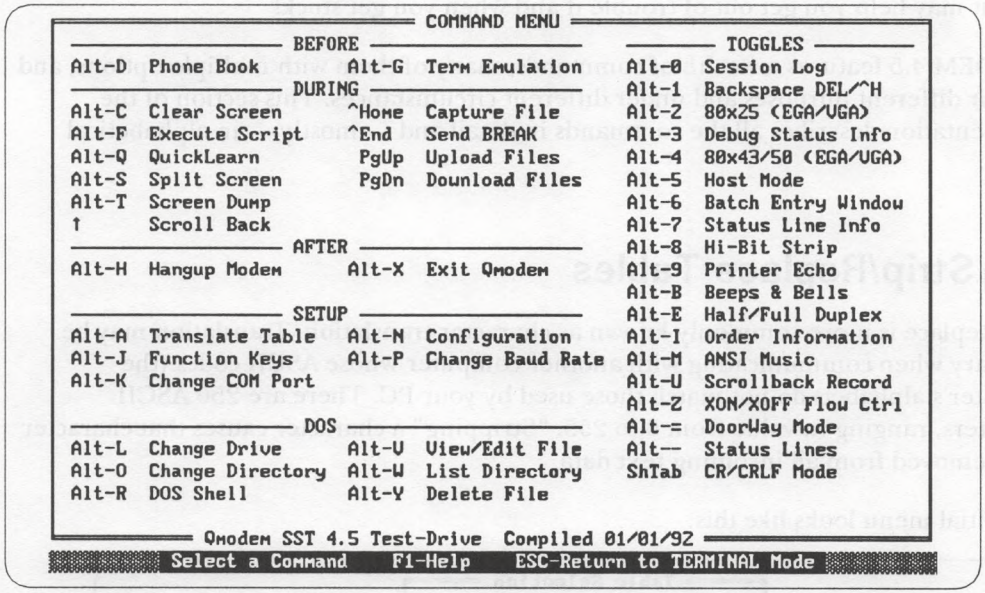
^ Scroll-back Toggle (Shown on-screen by an up-arrow). If present, QMODEM 4.5 is capturing incoming data to the scroll-back buffer. If blank, the scroll-back feature is not active.

PR Printer Toggle. If present, screen text is also sent to the printer.

7: The last item on the Status Line is the System Clock. When ONLINE, the clock displays Elapsed-Time (the duration of the call). When OFFLINE, the clock displays the time-of-day.

THE HOME MENU

Pressing the Home key displays the following screen which describes all available commands:



The Home Menu is divided into the following areas:

BEFORE — Commands you are likely to use before dialing a system such as setting terminal emulation and getting into the dialing directory itself.

DURING — Commands you are likely to use while online.

AFTER — Commands used to end your online session or exit.

SETUP — Commands used to change operational parameters.

DOS — Commands which interact with your computer, rather than with the computer you are calling.

TOGGLES — Commands that activate or deactivate certain features. Operating these toggles is usually done by pressing the corresponding key combination.

Notice that the Terminal Mode status line changes when the Home Menu is displayed (see above example) As the Home status line indicates, you can get summary help for

any command by pressing [F1], then the desired command key combination. Pressing [ESC] returns you to terminal mode.

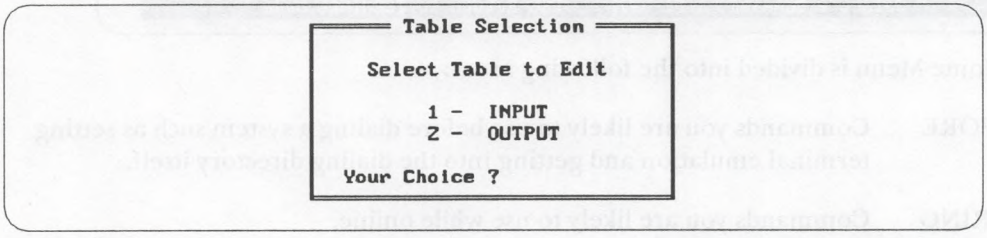
QMODEM 4.5 updates or replaces the Status Line to reflect the current environment, the function being performed, or the command being executed. Check the Status Line often, it may help you get out of trouble if and when you get stuck!

QMODEM 4.5 features a wealth of commands, many of them with multiple options, and used for different purposes and under different circumstances. This section of the documentation describes all the commands in detail and — mostly — in alphabetical order.

[ALT][A] Strip/Replace Tables

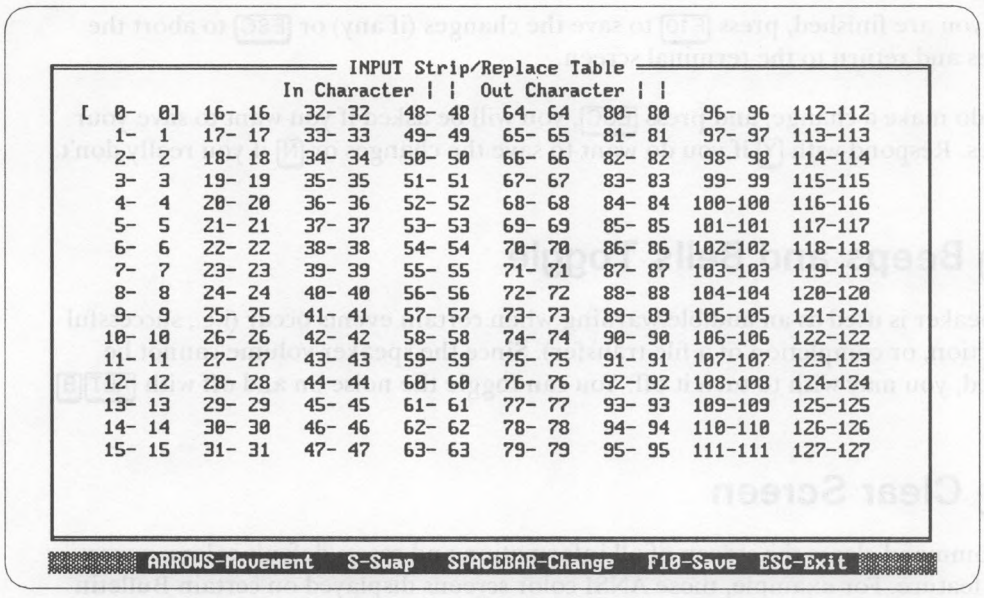
Strip/Replace is more commonly known as character translation. Translation may be necessary when communicating with another computer whose ASCII codes (the computer's alphabet) do not match those used by your PC. There are 256 ASCII characters, ranging in value from 0 to 255. "Stripping" a character causes that character to be removed from all incoming text data.

The initial menu looks like this:



Pressing either 1 or 2 displays a screen containing the ASCII values 0 through 127 and their respective translations. Since character translation is not performed by default, all values are the same the first time you use the [ALT][A] command.

Above the translate table are the original and translated representations of the current value. Characters which have been translated will appear highlighted until changed back to normal. This is a quick visual cue showing what has been changed.



To change (translate) an incoming ASCII value:

1. Move the half-box cursor to the desired ASCII value/character you want to strip or replace. The number to the left of the dash is the original ASCII value; the number on the right is the translated character which you will see when the original character is received.

2. Press the Space Bar once. A prompt will appear at the bottom of the screen asking for an number between 0 and 255. To strip the character, replace the number on the right with a 0 (ZERO).

3. Press [ENTER] to complete the change.

The original ASCII specification was a 7-bit code allowing for 128 characters (0-127). All modern-day computers add an 8th bit in front of the original 7 to allow another 128 characters. This 8th bit is also referred to as the High Bit. Pressing the [S] key will alternate the translate table display between the lower 128 (0-127) and higher 128 (128-255) characters.

Note that although a standard exists for most "lower" ASCII characters, this is not true of the "upper" 128 values. These High-Bit values are assigned freely by each computer manufacturer. For example, Apple, IBM, and Commodore use radically different standards in assigning characters to these higher values (the IBM PC uses the high-bit values for the international character set, symbols, and line/box-drawing characters).

When you are finished, press [F10] to save the changes (if any) or [ESC] to abort the changes and return to the terminal screen.

If you do make a change, and press [ESC], you will be asked if you want to save your changes. Respond with [Y] if you do want to save the changes or [N] if you really don't.

[ALT][B] Beeps and Bells Toggle

The speaker is used as an audible warning when certain events occur (i.e., successful connection, or completion of a file transfer). Since the speaker volume cannot be adjusted, you may wish to turn it off. You can toggle the noise on and off with [ALT][B].

[ALT][C] Clear Screen

This command clears the screen of all information and resets default colors; a very useful feature. For example, those ANSI color screens displayed on certain Bulletin Boards can utterly mess up your screen colors, sometimes leaving your screen black-on-black which is hard to read. Using [ALT][C] will reset the color on your screen back to your configuration selections; a real lifesaver.

If screen colors were changed while executing a Script command, the new screen colors will only remain in effect until the script terminates. Once the Script has ended, default colors are restored (but may require an [ALT][C] to invoke them).

In VT100 emulation mode, [ALT][C] only clears the active screen area between the top and bottom margins. This area is referred to as the Scrolling Region.

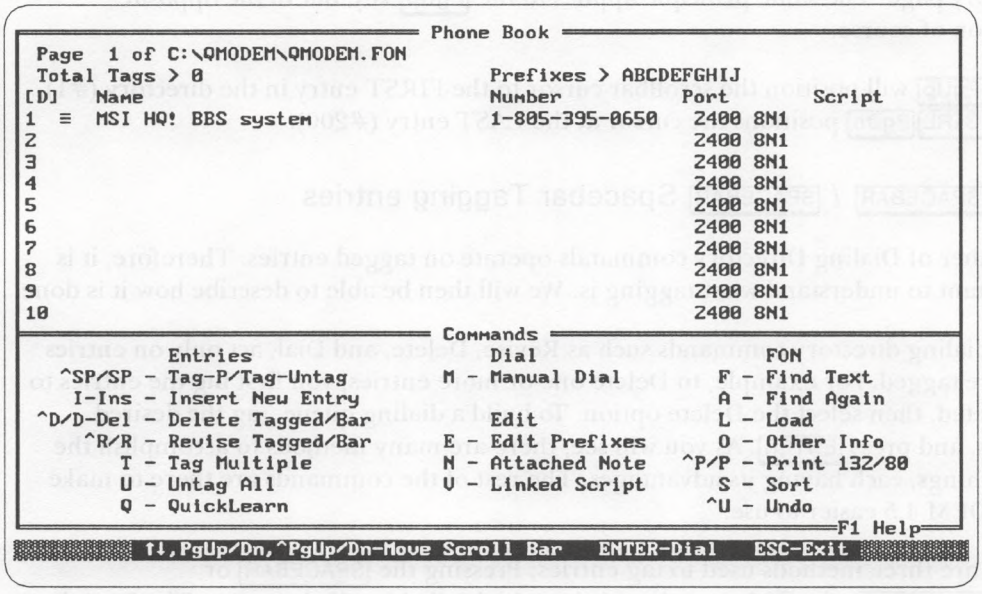
[ALT][D] Dialing Directory

The Dialing Directory can hold up to 200 entries, each containing information such as: name, number, communications parameters, auto-logon script name, date of last connect, total connections, default transfer protocol, and duplex mode.

Each directory entry has the ability to have "Note Files" attached. This file is a standard ASCII text file intended to hold all information relating to that entry: information about the System being called, hours of operation, Sysop name, and so on.

The size of this text file is limited only by the amount of memory not allocated or 60K, which-ever comes first. Entries with attached Notes are identified in the Dialing Directory with a triple-bar symbol (or [ALT][N][O][C][N] if you have changed the default)

immediately following the entry's number. Entry #1 in the following snapshot has an attached Note File.



Phone Book

The Dialing Directory screen is divided into 2 sections: The upper section displays directory entries, the current page, the number of tagged entries (more on this in a moment), the number of pre-defined Dialing Prefixes, and the actual entries on the page. The lower screen section displays all available Dialing Directory commands.

If your PC has EGA or VGA display capabilities, or is able to display at least 43 lines on the screen, the directory will display an additional 10 lines entries per screen!

What this snapshot does not show is the scrollbar cursor, a screen-wide highlight identifying the current directory entry. Instructions on moving the scrollbar cursor are shown in the [ALT][D] status line.

MOVEMENT COMMANDS

[Up] [Down] - [PgUp] [PgDn] - [CTRL][PgUp] [CTRL][PgDn]

The Up and Down arrow keys move the scrollbar cursor one line at a time in the corresponding direction.

Pressing [PgDn] displays the next directory page unless the last page is displayed. Pressing [PgDn] while in the last directory page causes wrap around back to the first directory page. The same principle applies to the [PgUp] key, but in the opposite direction of course.

[CTRL][PgUp] will position the scrollbar cursor to the FIRST entry in the directory (#1), while [CTRL][PgDn] positions the cursor at the LAST entry (#200).

[CTRL][SPACEBAR] / [SPACEBAR] Spacebar Tagging entries

A number of Dialing Directory commands operate on tagged entries. Therefore, it is important to understand what tagging is. We will then be able to describe how it is done.

Basic dialing directory commands such as Revise, Delete, and Dial, act only on entries that are tagged. For example, to Delete one or more entries, you first tag the entries to be deleted, then select the Delete option. To build a dialing queue, tag the desired entries, and press [ENTER]. As you will see, there are many methods to accomplish the same things, each having its advantages. The rest of the commands are there to make QMODEM 4.5 easier to use.

There are three methods used to tag entries; Pressing the [SPACEBAR] or [CTRL][SPACEBAR], the [Q] key, and a third method called implied tagging. The Spacebar is the most commonly used tagging method. "Q" tagging will be briefly discussed here, but will be covered in more detail later on. Implied tagging will be discussed under the Deleting Entries heading.

Tagged entries are identified in two different ways:

1. They are displayed in a different color (provided your color setup defines them as such), and
2. They are preceded by the special check-mark character "", "Q" or "P".

"What is the difference between the "(CHECKMARK)", "P",and the "Q" tags? "

Good question. If the Script field is blank or contains a Script name and the Script exists, then the "" tag is used. If a Script name is specified for that entry, but the script file does not exist, the letter "Q" is used as a tag character instead. If your phone entry uses Prefix modifiers, it is possible to dial the entry without them by using the [CTRL][SPACEBAR]. This puts the letter P where the Q would have been.

"So why the letter "Q", anyway?"

Another good question. "Q" stands for "QuickLearn", the automatic script building part of QMODEM 4.5. As the connection is established, QuickLearn records your interaction with the remote computer and creates a Script file which exactly replicates these actions the next time you call. As a result, the logon process becomes automated. A complete description of the QuickLearn facility is included later on in this manual. We think that QuickLearn sure beats a poke in the eye with a sharp stick. It is a neat feature, well worth paying for.

"I now have entries tagged... now what?"

Now you can Dial them, Revise them, or Delete them!

Un-tagging an entry is as simple as tagging it; use the Spacebar again. With the cursor on a tagged entry, pressing the Spacebar removes the tag.

[I], [INS] Insert New Entry

Adding new entries has never been easier! Simply move the Scrollbar to where you want to place the new entry and press either [I] or [INS]. All entries from the Scrollbar down are moved downward and a new blank entry is inserted.

When you insert a new entry, another entry must be deleted. The phone book is searched from bottom to top to find the first blank entry, then deleted. If there are no blank entries, then the Insert command is aborted. You have to delete an entry before inserting another one.

After the entry has been inserted, you can then use the Revise command to modify it.

[CTRL][D] / [D], [Del] Deleting Entries

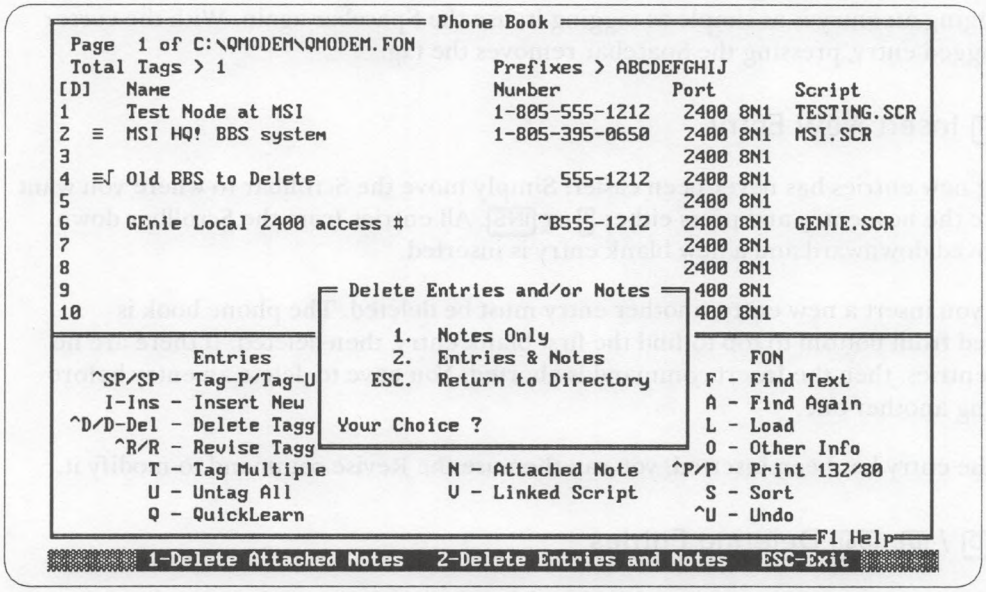
Deleting multiple entries requires that they first be tagged. Does this mean that you must tag a single entry before you revise or clear it? No, not quite.

If there are no tagged entries, it is assumed that the command applies to the entry at the cursor. Internally, the current entry is tagged, then the requested command is executed. This is the implied tagging method mentioned earlier, which requires no specific tagging action on your part. Thus, to perform operations against single entries, you do nothing more than issue the command; QMODEM 4.5 does the rest. To clear a single entry, move the scrollbar cursor to it, and press either [D] or [Del].

Implied tagging cannot be used when multiple entries are tagged explicitly. To clear multiple entries, tag them first with the Space Bar, then press CTRL D. The scrollbar cursor will move to the first tagged entry and will display the Delete Entry menu.

If multiple entries are already tagged as the result of a previous operation (i.e., dialing), and you wish to delete a single entry, REMOVE ALL TAGS FIRST by typing "U". Since tagged entries may be elsewhere in the directory, and not visible in the current page, it is easy to assume that implied tagging will work, when in fact it will not. It is advisable to check the Tag Count displayed at the top of the dialing directory screen before attempting any "implied-tag" commands.

Now that you understand the difference between explicit and implicit tagging, let's look at an example. In the screen below, entry #5 was tagged, and CTRL D was pressed:



The Delete Entry window serves a dual purpose. It can delete Attached Notes from an entry, or it can delete both the Notes and the entry itself. Entries cannot be deleted without Attached Notes being deleted as well.

In the example above, entry #5 has an attached Note. Selecting option #2 from the menu would delete the Note file as well as the entry. If entry #5 did not have an attached Note and we selected Option #1, no action would be taken.

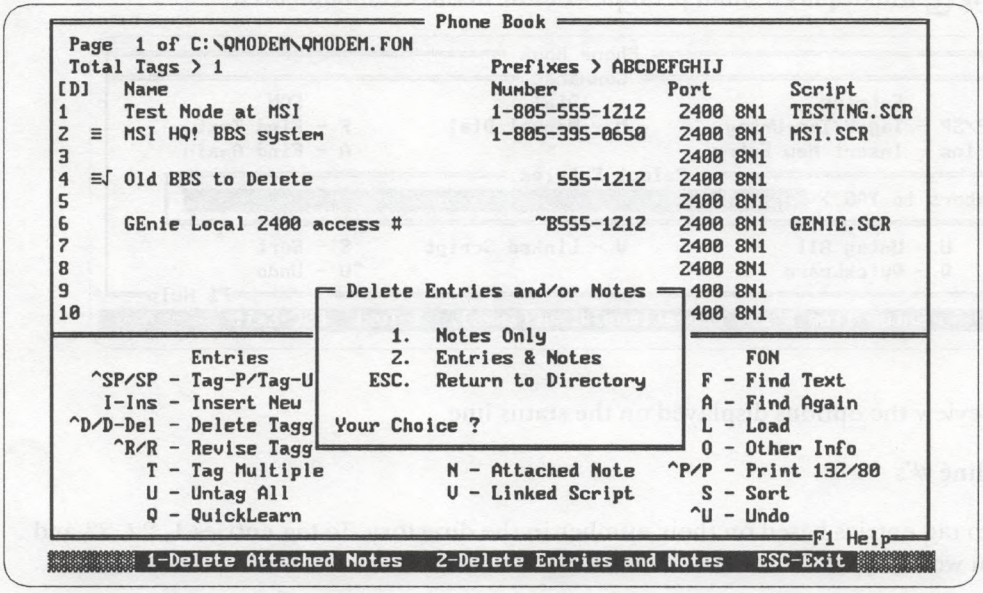
The menu option you select is applied to ALL tagged entries. To clear "Notes only" from certain tagged entries cannot be done and requires a separate operation.

The complete Phone Book is backed up prior to deleting entries if you have the [ALT][N][O][T][F][W] set ON. In either case, the Note files are never backed up. Once Notes are cleared, they cannot be restored.

[CTRL][R] / [R] Revise Tagged/BAR

The Revise command is used to edit directory entries. Multiple entries can be revised in a group. Simply tag all the entries you want to revise and press [CTRL][R]. If no entries are tagged, pressing [R] will revise the current entry (implicit tagging). If multiple entries are tagged and you press [R], only the entry under the Scrollbar will be revised.

The Revise Entry window looks like this:



This is one of the several Multi-field Edit windows in QMODEM 4.5. You simply move the cursor to where you want and make the change. Several fields in the menu allow popping up a Pick List by pressing [F2] when the cursor is in the field. Check the Status line as you cursor through the fields.

Once you have completed changing the information, press [F10] to save the changes. In the unlikely event you made a mistake, pressing [ESC] will restore the entire entry.

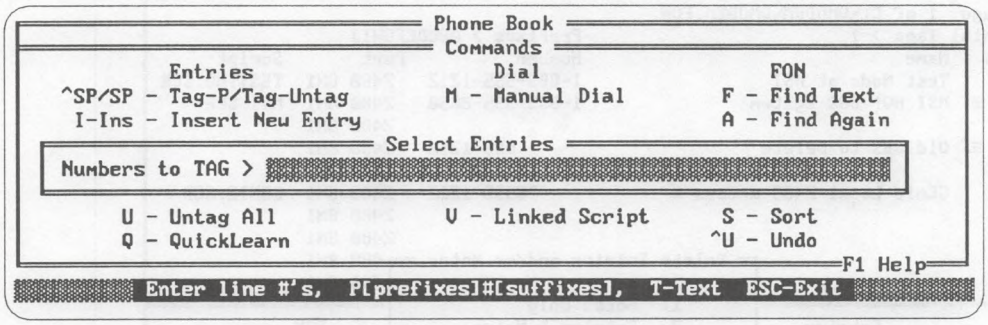
When revising multiple tagged entries, the Revise Menu will display the entries one at a time, in sequence. As each entry is saved (or you exit the Revise Menu via [ESC]), the next entry will be displayed, until all tagged entries have been processed.

If you're new to the world of modems, BBSs, online services and telecommunications, you might at this point be wondering how to find numbers to add to your dialing directory. To help get you started, we've included the file WCLIST.TXT on your QModem disks. This contains an up-to-date list of Wildcat! BBS systems, sorted by area code. Chances are there's a Wildcat! BBS in your area that would welcome your call.

[T] Tag Multiple

Tag Multiple is used to tag entries based on their entry number or the text content of their Name, Number field, or Attached Note file. In addition, Tag Multiple can be used to add or delete Prefix codes from entry phone numbers.

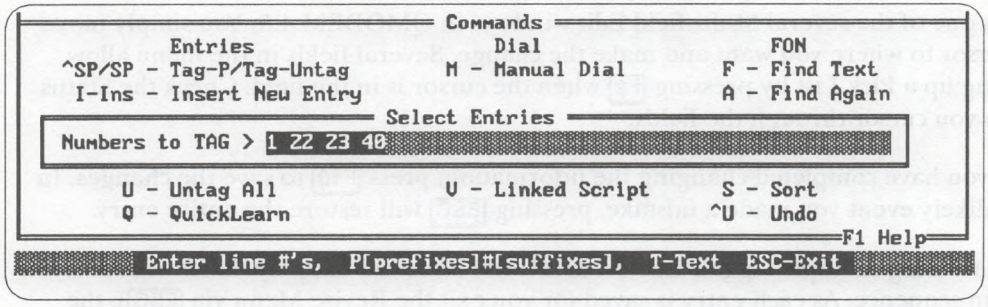
Pressing [T] will display a small prompt window in the Command area:



Let's review the options displayed on the status line.

Enter line #'s

Used to tag entries based on their number in the directory. To tag entries 1, 22, 23 and 40, you would type:

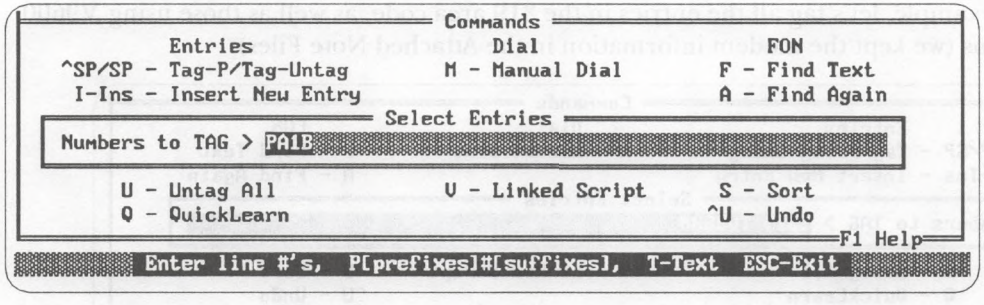


This feature is reminiscent of earlier releases of QMODEM which prompted the user for the numbers to be dialed.

[P] [prefixes]#[suffixes]

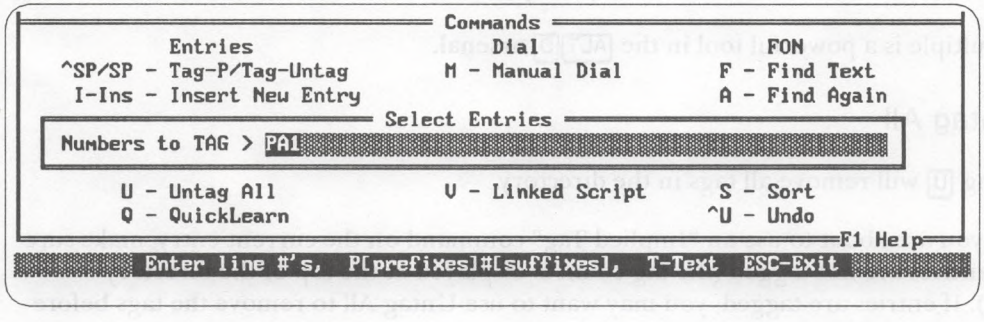
A prefix or suffix may be added to, changed, or deleted from an entry's phone number by preceding that entry's number with the letter 'P'.

For example, to dial entry #1 and add the prefix modifier 'A' to the beginning and 'B' to the end of the number, you would type:



The 'P' modifier means that one or more prefix codes will precede or follow the entry number, and that these are to be added to the entry's phone number. In the example above, the prefix 'A' is added before the number, and 'B' following it.

To REMOVE Suffix 'B' from entry #1, we would type:



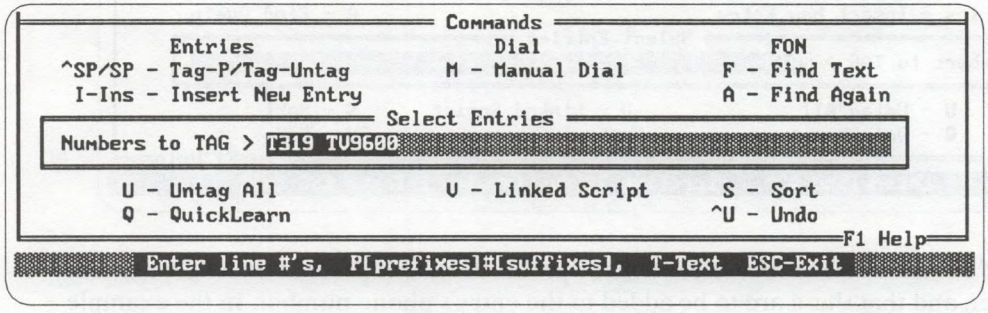
Since the 'A' prefix is kept, it is typed. 'B' was not included, so the 'B' suffix is removed. Taking this one step further, to remove all prefixes/suffixes from entry #1, we would type:

[T] [text]

Allows tagging of entries based on a text search:

1. NAME field,
2. NUMBER field, and
3. Attached NOTE files

Each text string to be searched is preceded by the letter 'T'. Using the previous phone book example, let's tag all the entries in the 319 area code, as well as those using V9600 modems (we kept the modem information in the Attached Note Files):



The leading 'T' is not case sensitive and text search arguments must be separated by at least one space. Also, text search arguments may not contain imbedded spaces. The space, the letter 'T', and the end of the prompt line are text search delimiters.

Tag Multiple is a powerful tool in the [ALT][D] arsenal.

[U] Untag All

Pressing [U] will remove all tags in the directory.

When you are about to use an "Implied Tag" command on the current entry, make sure other entries are not tagged (the tag count is displayed at the top of the directory screen). If entries are tagged, you may want to use Untag All to remove the tags before proceeding with the command.

[Q] QuickLearn

Pressing [Q] toggles the QuickLearn tag for the current entry if the Script field is non-blank. Connecting to a Q-tagged entry activates the QuickLearn Script Recorder.

You can force QuickLearn by using the letter "Q" to tag the entry instead of the Spacebar. When you connect, QuickLearn starts rewriting the Script for you!

The QuickLearn feature is described in detail under the [ALT][Q] command.

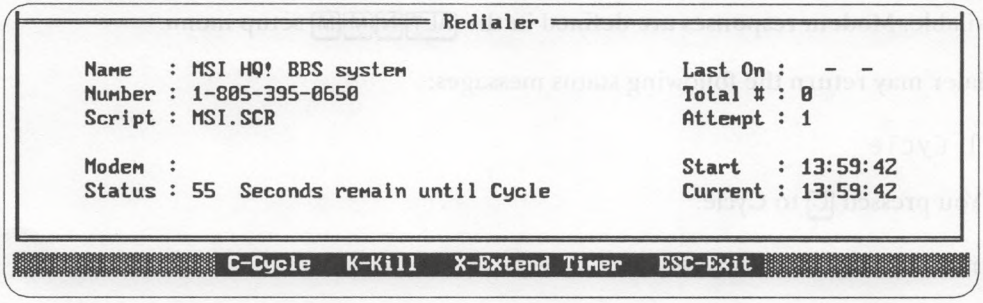
Dialing

[ENTER] - Start dialing

Pressing [ENTER] will begin dialing tagged entries in numerical order starting from the current scrollbar position. If no entries are tagged, the current entry will be tagged and dialed immediately. The Redialer will cycle through the tagged entries until a connection is made or you press [ESC] to halt the process.

QMODEM 4.5 will not dial entries with blank phone numbers. Also, the information in the number field is not checked for validity.

Following is the Redialer window:



The Dialer screen is divided into four areas, each containing information relating to the call in progress and to the entry being dialed.

The upper left identifies the dialed entry by name and phone number, and the name of the attached Script, if any. The lower left tracks the commands sent to the modem and the responses received from it. The status line displays timely information on the call in progress. The upper right displays the date of last connect, the total number of successful connections to the entry being dialed, and the number of dialing attempt during the current session. The lower right displays the time at which the dialing session was started, as well as the current time of day.

While in the dialer window, the following commands are valid:

[C]ycle — Pressing [C] cancels the current call and start dialing the next tagged entry.

[K]ill — Pressing [K] cancels the current call and untags it, effectively removing it from the dialing queue.

[X]tend — Pressing [X] key increases the dial cycle delay by 5 seconds. The cycle delay is the amount of time the Redialer waits for a connection before dialing the next entry (or the same entry if only one is being called). This delay is defined in the [ALT][N][M][C][H] setup menu.

[ESC] — Pressing [ESC] cancels the current call and exits the dialer. Explicitly tagged entries remain tagged.

The Status message area reports messages from the modem and the redialer. Modem messages are returned in response to dialing commands and may include codes such as BUSY, NO CARRIER, VOICE, and so on.

Extended responses such as BUSY, VOICE, and RINGING may not be implemented by your particular modem. Check your modem manual to determine which return codes are available. Modem responses are defined in the [ALT][N][M][M] setup menu.

The Dialer may return the following status messages:

`Manual Cycle`

You pressed [C] to Cycle.

`Number has been un-tagged`

[K] was pressed to remove the entry.

`ESC pressed, Dialing aborted`

[ESC] was pressed, and you are returned to Command mode.

`Dial timing period expired`

The cycle delay expired before a connection was made.

`Line busy or modem timed out`

One of the four modem Error messages ([ALT][N][M][M]) was returned and the call was canceled.

`CONNECTED, press a key to continue`

The modem returned the Connect message (ALT N M M C) and is now on-line. If the entry has an attached script, this message will be immediately erased, you will exit the dialer, and control will be passed to the script. If no script is attached to the entry, press any key to return to the terminal screen to view the on-line session.

`Redial pausing XXX`

The previous attempt was unsuccessful and the dialer is waiting before placing the next call.

`Dialing halted. Incoming call detected`

The Redial Cancel message (ALT N M M R) was received between dial attempts, indicating that a call is being received at the same time dialing is attempted.

`XXX Seconds remain until Cycle`

The current call is in progress. After XXX seconds, the call will be canceled if a connection is not established. The original delay is specified in the ALT N M C H setup menu.

Most modems have an internal timer which will cause the unit to hang up after waiting for a specific time for a connection to be made (most have a 60 second default). If the modem hangs up before the delay expires, your modem's delay is shorter than the ALT N M C H setting. It is advised that you set the modem's delay to a value high enough not to conflict with the QMODEM 4.5 setting.
Parameters passed to Scripts

Prior to passing control to a linked script, the redialer updates the values in the following pre-assigned string variables:

$BOARD the name of field.

$NUMBER the number called.

$SPEED the current baud rate.

$COM the parity, data and stop bits.

$PASSWORD the password field.

$PROTOCOL the default transfer protocol.

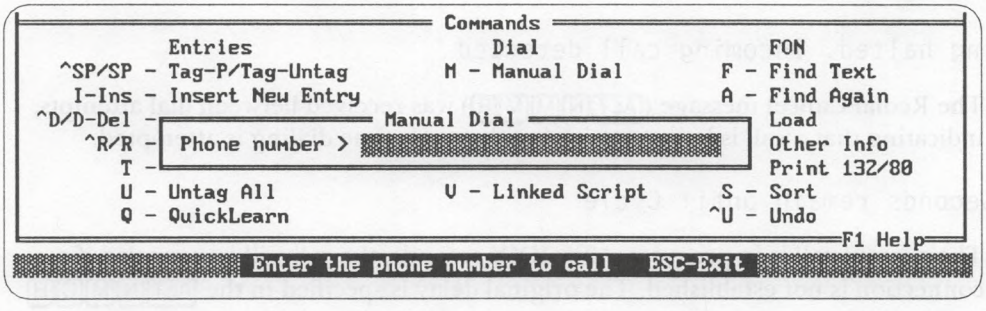
$SCRIPT the name of the linked script.

$NOTEFILE the name of the attached Note file.

These variables remain in effect for the duration of the script. For more information on scripts and string variables, refer to the Script Language Section in this manual.

[M] Manual Dial

When a number is not in the dialing directory, it can be dialed manually. Pressing 'M' displays the Manual Dial window:



Manual dial commands may contain up to 30 characters and/or digits. The number is not checked for validity. The data typed in the Phone Number field will be passed to the modem as if it was attached to a real entry. Any Prefix modifier will be substituted accordingly.

{F2}-{F12} Speed Dialing

Another new feature is Function Key Speed Dialing. Eleven function keys, [F2] through [F12], can be added to the Name Field, or the Attached Notes to allow for dialing 1 or a groups of numbers. [ALT][N][O][F][C], Clear on FKey, controls whether or not the Untag All command is executed before tagging the entries linked to the FKey.

You use the left and right curly braces { } to surround the FKey name. Like this:

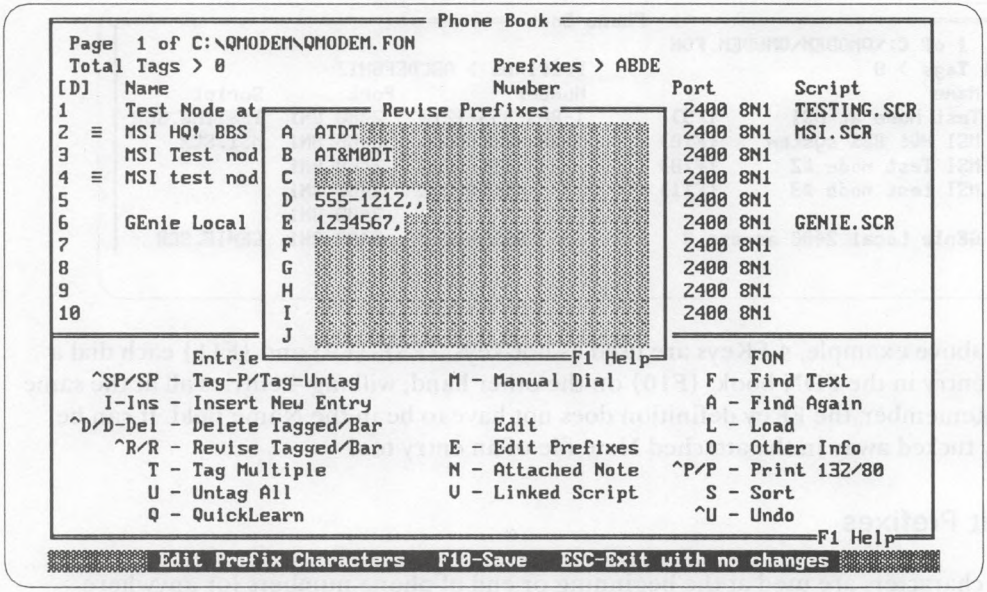
```
                              Phone Book
 Page  1 of C:\QMODEM\QMODEM.FON
 Total Tags > 0                          Prefixes > ABCDEFGHIJ
[D]   Name                                Number          Port       Script
1      Test Node at MSI          {F9}     1-805-555-1212   2400 8N1  TESTING.SCR
2  ≡   MSI HQ! BBS system        {F10}    1-805-395-0650   2400 8N1  MSI.SCR
3      MSI Test node #2          {F10}          555-1234   2400 8N1
4  ≡   MSI test node #3          {F11}          555-1212   2400 8N1
5                                                         2400 8N1
6      GEnie Local 2400 access #            ~B555-1212   2400 8N1  GENIE.SCR
```

In the above example, 4 FKeys are used as hot-keys. {F3}, {F9} and {F11} each dial a single entry in the FON book. {F10} on the other hand, will tag 4 entries all at the same time! Remember, the FKey definition does not have to be in the Name field. It can be quietly tucked away in the attached Note file of an entry too!

[E] Edit Prefixes

Prefix characters are used at the beginning or end of phone numbers (or anywhere between) to add standard and repetitive dialing information to the numbers as they are dialed. A prefix may be as simple as "Dial 9 to get out" or "Dial 1 for long distance", or it may hold a 7-digit SPRINT or MCI local access number. When used at the end of a number, the prefix becomes a Suffix which may be used to store a PBX access code, for example. In special cases, prefixes may even be used to store Alternate Dialing Commands.

Pressing [E] displays the Prefix edit window:



QMODEM 4.5 allows up to 10 Prefix codes, assigned the letters A through J. Each prefix code can store up to 30 characters.

In the example above, 5 Prefix codes have been defined. Also note that the phone number for entry #1 contains codes E and F. You can use multiple Prefix codes in any position of the Number field.

Do NOT define a phone number using its Alpha representation. Numbers such as "1-800-DECDEMO" may be a valid telephone number, but the Dialer will substitute the prefix values of letters A-J in any phone number. For all we know, 1-800-DECDEMO might get you connected with Outer Mongolia ($98.55 a minute).

Make sure that the total length of the dialed number AND prefix(es) does not exceed your modem's maximum command length. This maximum should be listed in your modem's operation manual. Most modems limit dialing input to 40 characters.

If you have a Hayes-compatible modem, you will notice that Prefix codes A, B, and C look amazingly similar to the Modem Dialing Command defined in [ALT][N][M][M][P]. That's because these prefixes are dialing commands.

To use these alternate dialing commands, precede the desired prefix with the special character ' (left tick mark or single end quote). When it detects that special character, it will use the prefix code which immediately follows instead of the [ALT][N] default dialing command.

Example:

```
                              Phone Book
 Page  1 of C:\QMODEM\QMODEM.FON
 Total Tags > 0                          Prefixes > ABDE
[D]   Name                        {F9}    Number          Port      Script
1      Test Node at MSI           {F9}    `1-805-555-1212  2400 8N1  TESTING.SCR
2  ≡   MSI HQ! BBS system         {F10}   `1-805-395-0650  2400 8N1  MSI.SCR
3      MSI Test node #2           {F10}       `A555-1234   2400 8N1
```

The example above assumes a modem with an MNP error-correction mode that is enabled with the AT&M4 command, and it is disabled with the AT&M0 command. The DT "Dial Tone" command tells the modem to tone-dial the number which follows.

In the example above, entry #2 will be dialed with an AT&M4DT command, which enables MNP error-correction and dials the MSI HQ BBS (which operates a few HST modems). Entry #3 will be dialed with an AT&M0DT command, which disables MNP error-correction and dials 555-1212. Entry #1 will be dialed with a standard ATDT command which will not affect the current state of MNP error correction.

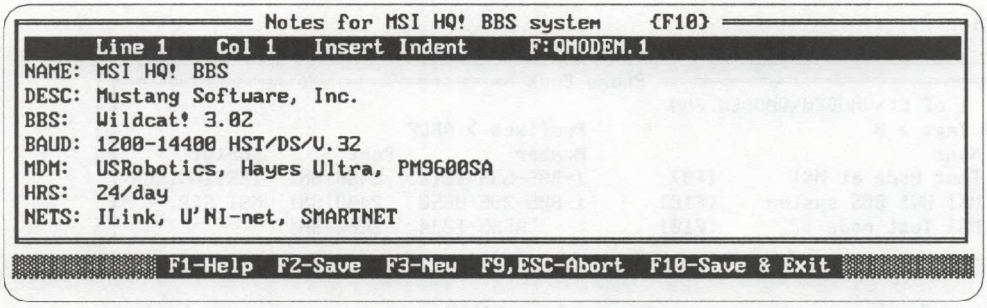
If you use the ' modifier to enable or disable one or more of your modem's features, be sure to set the default dialing prefix (ALT N M M P) to the mode which you use most often. By doing this, you only need to override entries that do not conform to the default mode. In the previous example, your default dialing prefix should be "AT&M4DT". Prefix 'B would be used to dial non-MNP systems.

N Attached Notes

Textual information can be "Attached" to each directory entry and retrieved with a single keystroke. The data is stored in special Note Files which can be edited with the Internal Editor or any editor of your choice (as defined in ALT N F V).

To create a note file, update an existing note, or view one, move the Scrollbar to the entry and press "N". The Note command is an immediate command and does not affect the tagging of other entries. When you press "N", the current entry's Note File will be edited.

The following example demonstrates the use of the Internal Editor:


Notes for MSI HQ! BBS system {F10}
Line 1 Col 1 Insert Indent F:QMODEM.1
NAME: MSI HQ! BBS
DESC: Mustang Software, Inc.
BBS: Wildcat! 3.02
BAUD: 1200-14400 HST/DS/V.32
MDM: USRobotics, Hayes Ultra, PM9600SA
HRS: 24/day
NETS: ILink, U'NI-net, SMARTNET
F1-Help F2-Save F3-New F9,ESC-Abort F10-Save & Exit

The internal editor screen overlays the command area at the bottom of the screen. The current entry's name is shown in the editor window's label.

In the example above, the note is used to store useful information which cannot be stored into the dialing directory itself. Using this method to document directory entries allows the use of the Text Search function (or a text search argument in a Tag command) to locate entries based on BBS software, the type of modem in use, or supported baud rates.

The names assigned to Note Files are transparent to the user. These names are assigned permanently when the directory is created. Note files have the same file name as the directory to which they are attached, and their file extension is a number in the range 1..200, corresponding to the entry to which that specific note file is attached. The name of each note file is stored in each directory entry, which allows sorting of the directory without losing the Note File linkage.

If you use an external editor, make sure that is creates standard CR/LF-delimited ASCII files to insure that text search commands work properly.

If an entry has an attached Note, a special symbol will be displayed immediately following the entry number in the directory.

The Attached Notes identifier can be changed via the [ALT][N][O][C] setup menu.

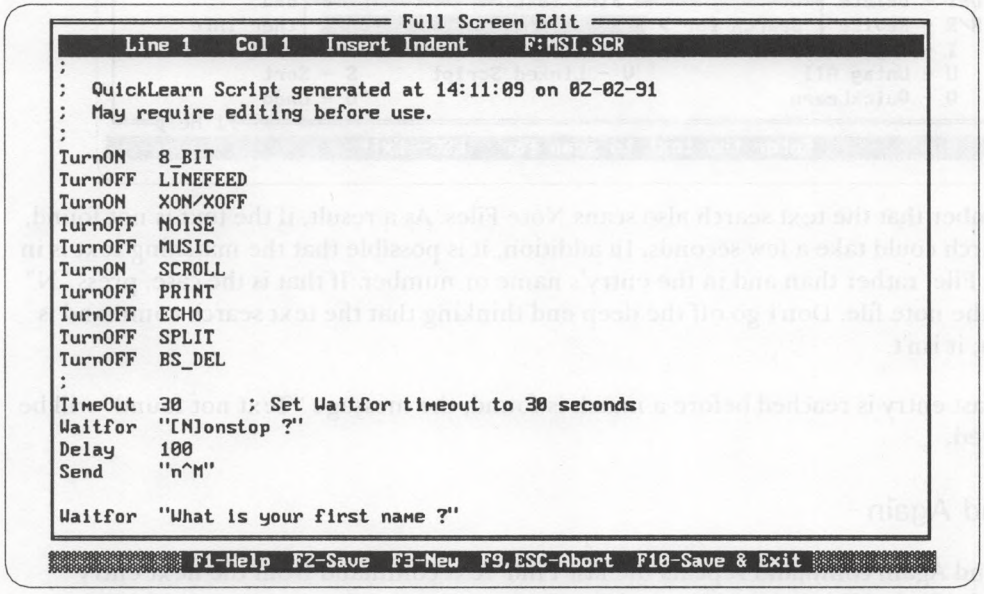
[V] Linked Scripts

"Linked Scripts" are executed when a connection is established. These are commonly referred to as "Logon Scripts". Pressing "V" allows editing of linked scripts, much in the same way as the Revise Entry command. The "V" command operates the same way as the "N" command in that it is immediate and does not affect the tagging of other entries. When you press "V", the current entry's linked script will be edited.

When editing a linked script, the Internal Editor uses the entire screen area.

The Script field cannot be blank for the editor to be invoked.

Following is a sample Linked Script Edit Screen (using the Internal Editor, of course):

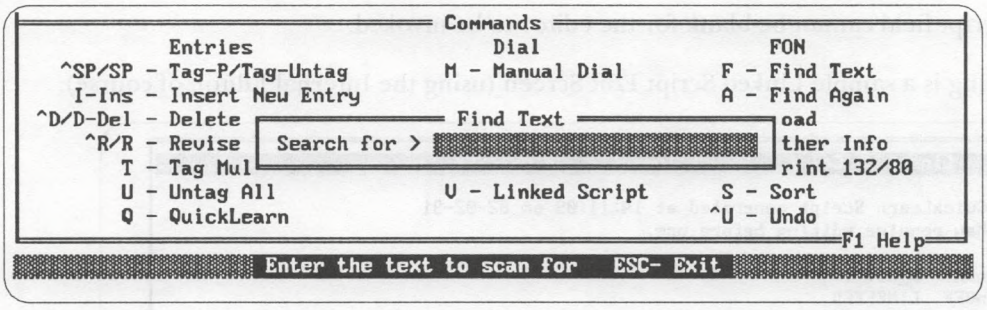


[F] Find Text

The Find Text command is used to quickly scan the dialing directory for a specific text string. Entry Names, Phone Numbers and Attached Notes are searched starting with entry #1.

Following the search, the Scrollbar will be positioned on the first matching entry. Unlike the Tag Multiple command, matching entries are not tagged Also unlike Tag Multiple, you may only specify one search argument. With the Find Text command, search arguments may contain imbedded spaces.

Pressing "F" displays the Find Text prompt:



Remember that the text search also scans Note Files. As a result, if the text is not found, the search could take a few seconds. In addition, it is possible that the matching text is in a Note File, rather than and in the entry's name or number. If that is the case, press "N" to see the note file. Don't go off the deep end thinking that the text search command is broken; it isn't.

If the last entry is reached before a match is found, the message "Text not found" will be displayed.

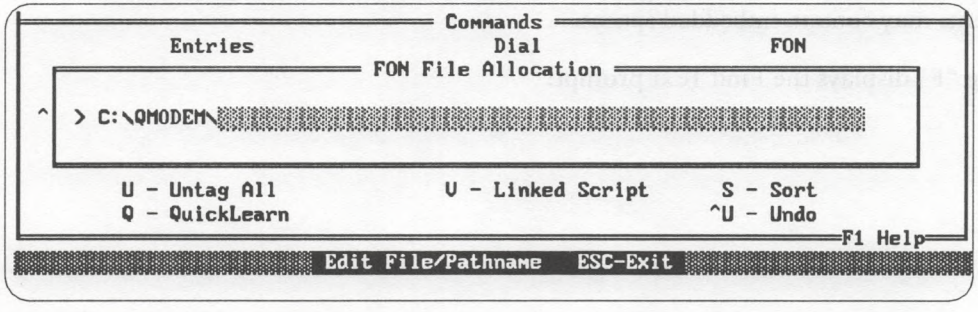
[A] Find Again

The Find Again command repeats the last Find Text command from the next entry forward. If no additional matches are found, the message "No more matches" will be displayed.

[L] LOAD

The "L" command is used to load an alternate phone book. If the new phone book does not exist, you will be prompted to create it.

Pressing "L" displays the following window:



To load a new phone book, type its name (with optional drive and path information) in the prompt window and [ENTER]. The .FON extension is not required and will be forced on if not entered. If the file does not exist, a new one will be created automatically using the default parameters defined in the [ALT][N][M][C] Setup Menu.

All phone book files must have a .FON extension. Should you use pre Version 4.2 phone books with a different file extension, they must be renamed with the mandatory .FON file type (the filename may have to be changed as well to prevent duplication). This was made necessary when Attached Notes were added. Since the Note Files are assigned the same name as the directory they are attached to, duplicate phone book filenames would present conflicts.

This restriction can be circumvented if phone books reside in separate subdirectories as long as the phone book file extension is .FON. (i.e., QMODEM.FON)

[O] Other Info

Pressing "O" alternates the dialing directory display and allows viewing of the "right half" of the directory. Following is a display after the "O" key was pressed. Note the new information shown:

Phone Book

Page 1 of C:\QMODEM\QMODEM.FON
Total Tags > 0 Prefixes > ABDE

[D]		Name		Password	LastCall	Total	P	D
1		Test Node at MSI	{F9}	password	- -	0		F
2	≡	MSI HQ! BBS system	{F10}	Paragraph	- -	1902	X	F
3		MSI Test node #2	{F10}		- -	0	X	F
4	≡	MSI test node #3	{F11}		- -	0	X	F
5					- -	0	X	F
6		GEnie Local 2400 access #		test×anguish	12-31-01	121	X	F
7					- -	0	X	F
8					- -	0	X	F
9					- -	0	X	F

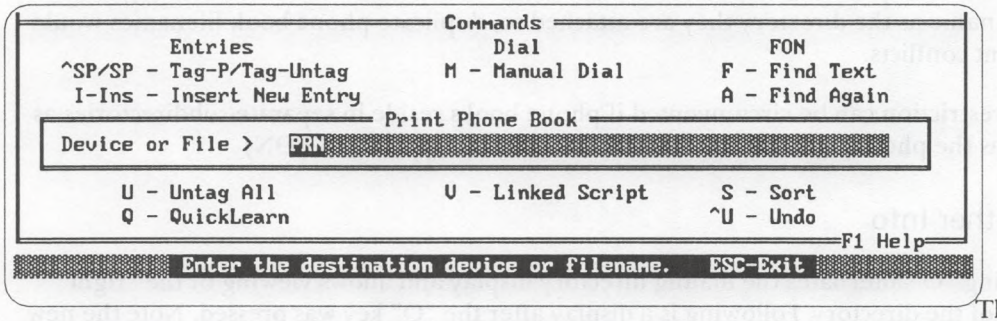
The additional directory information displayed includes fields labeled LastCall, Total, P, and E. "LastCall" (last CONNECT date) and "Total" (total CONNECTS) are maintained by the Redialer, while the P(rotocol) and E(Cho, or Duplex setting) fields are user-defined.

QMODEM 4.5 does not maintain "Last Dialed" and "Total Dialed" fields; the Last Call and Total fields shown only reflect successful connections to the entry.

CTRL P P Print

The Print command produces a formatted ASCII copy of the Phone Book on a printer or text file. When pressing 'P', you are prompted for a valid DOS device or filename. The default is defined in ALT N F P.

Note the PRN default in the window. To override it, backspace and type the new device or filename:



The above example will create a phone book listing and store it in the file SAVEFON.TXT in the C:\QMODEM directory. Other valid devices include LPT1:, LPT2:, LPT3:, COM1:, etc...

Following is a sample of the formatted phone book listing when the "P" 80 Column mode is selected:

```
                    Qmodem Version 4.5 Phone Book
                    =============================

Page  1   File : Z:\QMODEM.FON

      Name                                Number          Com        Script
-------------------------------------------------------------------------------
1   Sub Line 7              {F9}          555-1212   38400-8-N-1   SYSOP2
2   ZSoft BBS                       1-404-427-1045   38400-8-N-1   ZSOFT
3   Home Qmodem Host                      555-1212   38400-8-N-1   QHOST!
4   Sub Line 2              {F11}         555-6157   38400-8-N-1   SYSOP2
5   Sub Line 3              {F10}         555-6256   19200-8-N-1   SYSOP2
6   Sub Line 4              {F10}         555-6324   38400-8-N-1   SYSOP2
7   Sub Line 5              {F10}         555-6006    2400-8-N-1   SYSOP2
8   Sub Line 6              {F10}         555-9834   38400-8-N-1
9   Sub Line 1                            555-1212   38400-8-N-1   SYSOP2
10  Exec-Net                {F3}    1-914-555-5566   38400-8-N-1   EXECNET

                Qmodem Copyright (C)  Mustang Software, Inc.
```

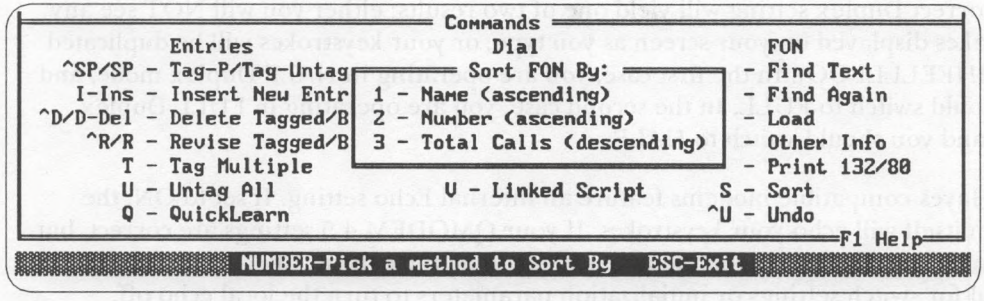
The entry numbers shown in the listing are assigned sequentially starting with number 1. Since the Print command does not process blank entries, these number are NOT the same as the entries' number shown in the Phone Book

Entries and listing numbers will match only if blank entries appear at the end of the phone book — i.e., no empty entries are imbedded between non-blank entries.

[S] Sort

The Sort command, as its name indicates, sorts the phone book in one of three user-selected sequences:

1. By Name field
2. By Phone Number field
3. By Total Connects



To select the sort field, press 1, 2, or 3 and then [ENTER] to Sort, or press [ESC] to cancel the operation. Name and Number sorts are in Ascending ASCII sequence (A), with number being sorted before letters. Sorts by Total Calls are in Descending sequence. As a result, the most-frequently called entries will move toward the top of the Phone Book (higher numbers being placed first).

As a safety measure, the Phone Book is backed up prior to being sorted. Should you change your mind, the previous unsorted copy of the Phone Book can be restored immediately via the Undo command, covered next.

[CTRL][U] Undo

Prior to any changes, a snapshot of the Phone Book is taken, and the Phone Book is saved in a backup file with the same name as the original and a file extension of .FBK. The last Phone Book backup can be restored immediately via the Undo command.

When you press CTRL U, QMODEM 4.5 looks for a file with the same name as the current phone book and an .FBK extension, If found, that file will be loaded in place of the current Phone Book. If no .FBK file is found, an Information Window will be displayed, stating that no backups were found.

If ALT N O T F W (Write FBK File) is set OFF, this command does not restore the backup. There is no FBK file!

ALT E Duplex Toggle

ALT E switches QMODEM 4.5 operation between Full Duplex and Half Duplex modes. "Duplex" describes the method used in echoing your keystrokes back to your terminal screen. In Full Duplex mode, the remote system you are connected to echoes your keystrokes back to you. In Half-Duplex Mode, the remote system does not echo your keystrokes, and QMODEM 4.5 must do it instead.

An incorrect Duplex setting will yield one of two results: either you will NOT see any keystrokes displayed on your screen as you type, or your keystrokes will be duplicated (i.e., HHEELLLLOO). In the first case, you are operating in HALF Duplex mode, and you should switch to FULL. In the second case, you are operating in FULL Duplex mode and you should switch to HALF.

Most Hayes-compatible modems feature an internal Echo setting. If set to ON, the modem itself will echo your keystrokes. If your QMODEM 4.5 settings are correct, but keystrokes are duplicated, the modem is likely to be the culprit. Check your modem manual for switch settings or initialization parameters to turn the local echo off.

Pressing ALT E will display a Status window on the screen when toggled.

Check the Status line for either FDX or HDX to see which mode you are in.

ALT F Script File Execution

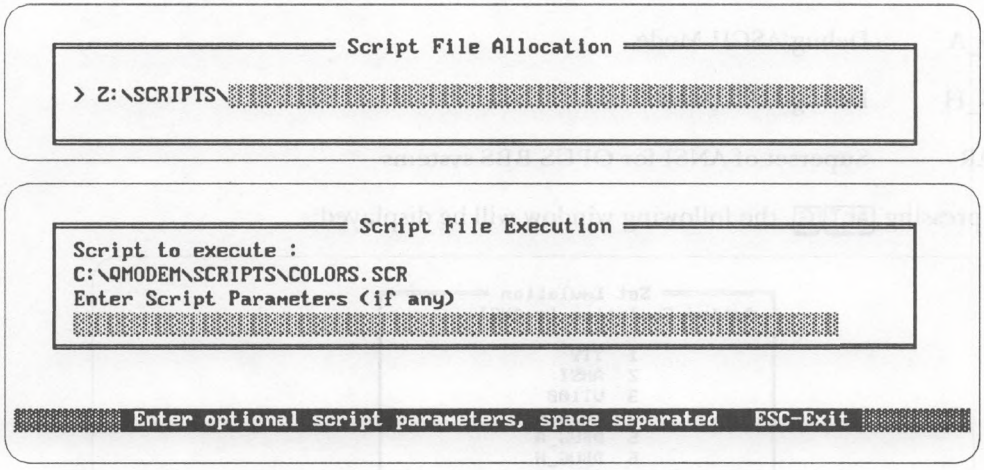
"What is a Script?"

Scripts are internal QMODEM 4.5 programs. QMODEM 4.5 features a command language to automate and/or time-schedule logons and interactions with remote computers. Scripts can be used on commercial services such as CompuServe, Delphi, Dow Jones News/Retrieval, GEnie, MCI-Mail, NewsNet and local BBS systems such as PCBoard, WILDCAT!, Fido, and RBBS-PC.

With a script, you need only type a few keystrokes to set communication parameters, dial the phone, connect to another computer, log on with your name and account number or password, retrieve and save information, and log off. Since everything is automated, there are no mistakes or wasted time spent on-line. When used properly, scripts can save you money.

Executing a script is a two step process. Pressing [ALT][F] displays the script File Allocation Window, in which you must type the desired script name. You will then get a prompt for any additional parameters which could be passed to the script.

The following are samples of Script File Allocation and Execution windows:



Once you have entered any additional parameters, if any, the script will begin.

Scripts must be located in the Scripts Directory specified in the [ALT][N][D][S] Setup Menu. If the default directory is blank, QMODEM 4.5 will as look for the scripts in the current directory.

For more information on Scripts, refer to the Scripts Section of the QMODEM 4.5 manual.

[ALT][G] Terminal Emulation

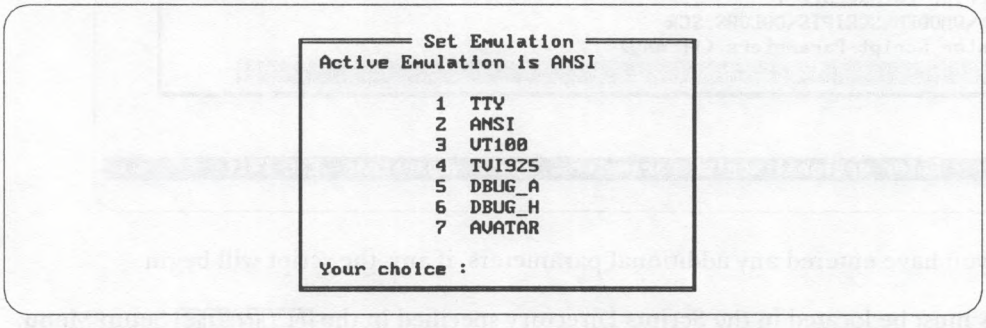
The Terminal Emulation feature allows QMODEM 4.5 to behave like a terminal other than a standard PC display, such as the popular VT100 from Digital Equipment Corp. While in terminal emulation mode, QMODEM 4.5 interprets device-dependent

information so that it is displayed properly on the PC screen as if it were a native terminal of the selected type.

QMODEM 4.5 supports 7 different types of emulations:

TTY	No emulation at all.
ANSI	Emulates the ANSI.SYS of PC DOS.
VT100	Emulates the Digital VT100.
TVI925	Emulates the Televideo 925.
DBUG_A	Debug ASCII Mode
DBUG_H	Debug HEX Mode
AVATAR	Superset of ANSI for OPUS BBS systems

When pressing [ALT][G], the following window will be displayed:



To select the desired emulation mode, press the corresponding letter. The screen will be cleared and the QMODEM 4.5 Status Line will reflect the new emulation mode.

If you are in Split-Screen mode (via [ALT][S]), you may not select a new terminal emulation mode. In order to operate properly, Split-Screen mode forces TTY emulation.

TTY

This has no specific character translations or function keys. The full ASCII character set is supported with the IBM extended character set (codes 128- 255).

TTY does not include cursor control codes or enhanced video options.

When calling BBS systems, the ANSI emulation is recommended.

ANSI

This emulation is recommended for BBS usage. Complete IBM ANSI.SYS compatibility is built right in. You do not need to load the ANSI.SYS driver in your CONFIG.SYS file. Extensions include the VT100 mode Screen clear commands because CompuServe can't tell the difference between ANSI and VT100.

KEY	FUNCTION	XMITED CODE
Tab	Horizontal Tab	0x09
Del	Character delete	0x7F
Home	Home the Cursor	0x1B5B48
Up Arrow	Cursor Up	0x1B5B41
Down Arrow	Cursor Down	0x1B5B42
Left Arrow	Cursor Left	0x1B5B44
Right Arrow	Cursor Right	0x1B5B43
PgDn	Clear Screen	0x1B5B324A
End	Erase End of Line	0x1B5B4B
Enter	Carriage Return	0x0D
^Enter	Linefeed	0x0A

VT100

QMODEM 4.5 supports the standard VT100 functions; half/full duplex, set/reset modes, scrolling region, keypad application mode, special graphics character set, US & UK character sets, full display attributes including ANSI color extensions, programmable tabs and cursor control.

To take advantage of larger screen dimensions other than 80x25, you must have an EGA or VGA card that supports more lines and columns in text mode. Assuming you have such a card, place the card in the desired mode (say, 132x43) and then select the VT100 emulation. Until changed manually (via [ALT][2], [ALT][4] or an external driver), the screen will lock in on the selected dimensions.

QMODEM 4.5 responds to the "Identify" command (0x1B5B63 or 0x1B5A) with "ESC[?1;2c" (0x1B5B3F313B3263).

KEY	FUNCTION	XMITED CODE

Tab	Horizontal Tab	0x09
Del	Character delete	0x7F
Home	Home the Cursor	0x1B5B48
Up Arrow	Cursor Up	0x1B5B41
Down Arrow	Cursor Down	0x1B5B42
Left Arrow	Cursor Left	0x1B5B44
Right Arrow	Cursor Right	0x1B5B43
PgDn	Clear Screen	0x1B5B481B5B324A
End	Erase End of Line	0x1B5B4B
Enter	Carriage Return	0x0D
^ Enter	Linefeed	0x0A

TVI925

QMODEM 4.5 supports a partial list of Televideo 925 functions; cursor positioning, inverse video, and custom Status lines. Protected fields and multiple video pages are not supported, but will be in a future release.

KEY	FUNCTION	XMITED CODE
Tab	Horizontal Tab	0x09
Del	Character delete	0x7F
Up Arrow	Cursor Up	0x0B
Down Arrow	Cursor Down	0x16
Left Arrow	Cursor Left	0x08
Right Arrow	Cursor Right	0x0C
Enter	Carriage Return	0x0D
^ Enter	Linefeed	0x0A

DEBUG ASCII

This is a custom Emulation for debugging connections. It resembles the TTY emulation with the exception that ASCII codes 0-31 and 255 are displayed in mnemonics surrounded by square brackets.

The list is as follows:

Code	Mnem.	Code	Mnem.
# 0	[NUL]	#16	[DLE]
# 1	[SOH]	#17	[DC1]
# 2	[STX]	#18	[DC2]

# 3	[ETX]	#19	[DC3]
# 4	[EOT]	#20	[DC4]
# 5	[ENQ]	#21	[NAK]
# 6	[ACK]	#22	[SYN]
# 7	[BEL]	#23	[ETB]
# 8	[BS]	#24	[CAN]
# 9	[HT]	#25	[EN]
#10	[LF]	#26	[SUB]
#11	[VT]	#27	[ESC]
#12	[FF]	#28	[FS]
#13	[CR]	#29	[GS]
#14	[SO]	#30	[RS]
#15	[SI]	#31	[US]
		#255	[0xFF]

DEBUG HEX

This is also a custom Emulation for debugging connections. It resembles nothing you've ever seen before... All data received is displayed in HEX between square brackets.

A sample looks like this:

```
[61][74][0D][0D][0A][4F][4B][0D][0A]
```

This is the result of typing AT [ENTER] and the modem responding with "OK".

AVATAR

This emulation is a superset of the ANSI emulation. As such, all of the above information on ANSI applies to Avatar. AVATAR control codes were designed to be lean and mean. AVATAR includes provision for packing replicated characters which can cut transmission time significantly.

Enhanced control codes are as follows:

Codes	Type	ANSI Equivalent
^V^Aa	Attribute	ESC[n;nm

The "a" is a single byte. The value of this attribute byte corresponds to the video attributes used by IBM on their Color Graphics adapters. (Intense video is supported, black-on-black is not.)

^V^B	Blinking On	ESC[5m

Blinking is turned off by the next ^V^A command.

^V^C	Cursor Up	ESC[1A

Move the cursor up one line.

^V^D	Cursor Down	ESC[1B

Move the cursor down one line.

^V^E	Cursor Left	ESC[1D
^V^F	Cursor Right	ESC[1C
^V^G	Clear to end of line	ESC[K
^V^H	Set cursor position	ESC[x;xf

These are 1-based numbers with the row coordinate first. The upper left of the display is "1,1." The start of the second line would be "2,1." In most cases, the lower right corner will be "24,80." Values that fall outside of the user's declared screen size are clipped.

^L	Home & Clear Screen	ESC[H ESC[0;30;36m ESC[2J

Note that the color will be reset to white on black, and not the default Text Color of ALT N V C.

^Y#	Replicate Character	No matching ANSI command.

This will replicate character (or any byte 0-255) for # number of iterations. # can be in the range 1-255.

ALT H Hang-up

The Hang-up command is used to force the modem to terminate a call. In most cases, you would not use this command to disconnect from the remote computer; you would use the remote computer's standard LOG OFF procedure. However, in case you are experiencing problems (remote computer lockup, bad line noise) you may use this

What [ALT][H] does varies, depending on the information specified in the [ALT][N][M][M][H] Setup Menu. Usually, QMODEM 4.5 will send the modem hang-up string defined in your setup. However, if you specified "DTR" as a modem hang-up string, QMODEM 4.5 will toggle the "DTR" signal and the connection will be dropped. And if you specified "BREAK", the UART BREAK signal will be sent.

The recommended Hang-up string for Hayes and compatible modems is:

"^~^~^~+++^~^~^~ATH^M" where:

^~^~^~ = 1.5 seconds delay

+++ = go to Command Mode string

^~^~^~ = another 1.5 seconds delay

ATH = command to Hang-up

^M = the [ENTER] key

"DTR" stands for "Data Terminal Ready". Most modems will automatically disconnect from the phone line DTR signal is dropped for 1.5 seconds. Having the three characters "DTR" in the Hang-up string does exactly that. If in doubt, check your modem manual to see if "Dropping DTR" is an accepted method of disconnecting. If so, this should be the preferred method.

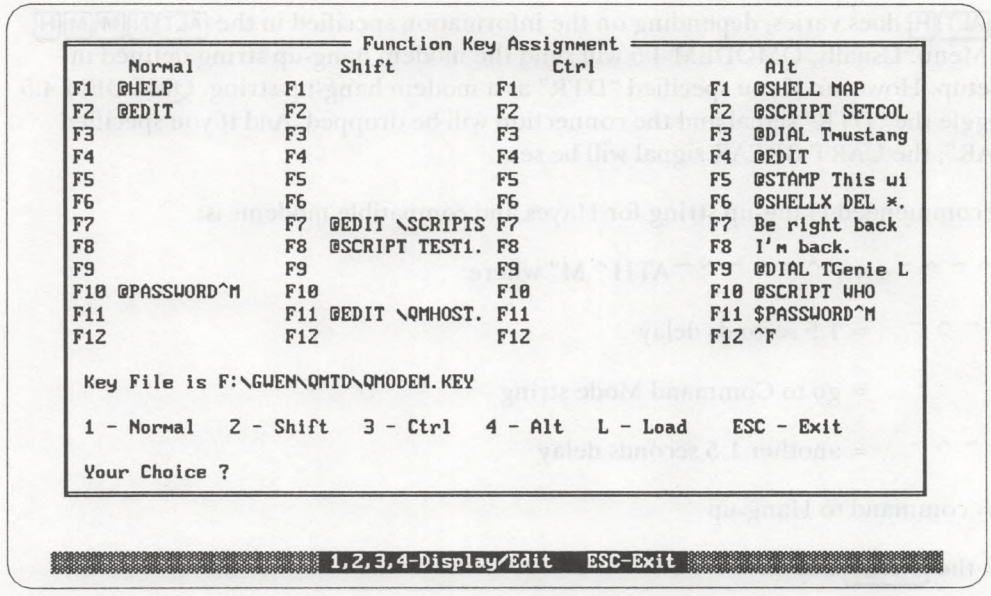
BREAK is a signal generated by the UART (Universal Asynchronous Receiver Transmitter, the main chip on your serial adapter or modem). Some PBX and Bell type modems require a BREAK signal before they will take action. Again, check your modem manual before setting this option.

[ALT][I] Information on QMODEM 4.5

The QMODEM 4.5 information screen always displays the QMODEM 4.5 release number, our Voice, BBS, and Fax numbers.

[ALT][J] Function Key Macros

Function key (FKey for short) macros are used to store keystrokes which are sent repetitively. When pressing [ALT][J], the following window is displayed:



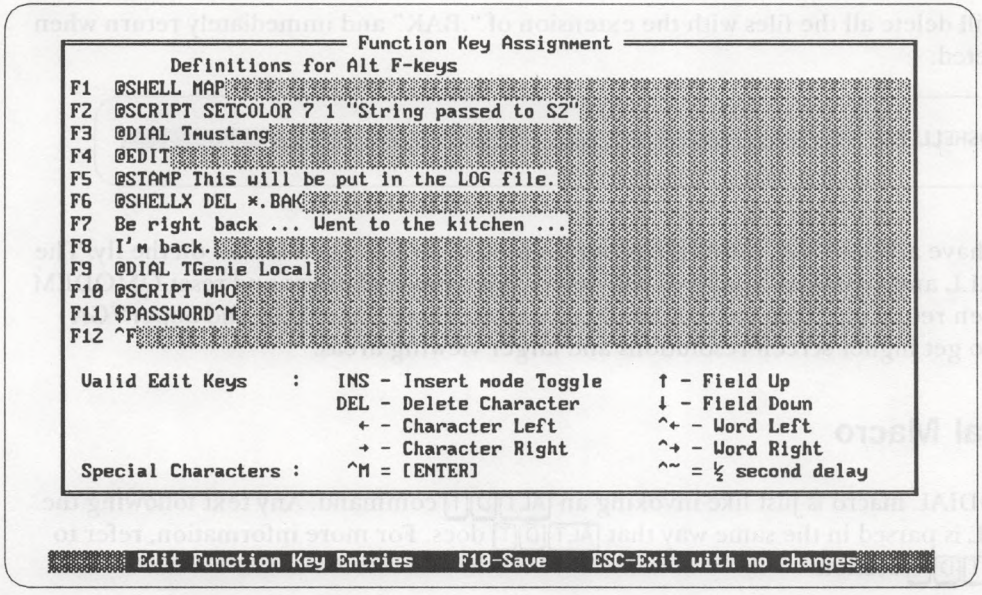
Up to 48 FKey Macros may be programmed at one time. FKey Macros are stored in "Key Definition Files" with .KEY file extensions and user-assigned filenames. Each key can store up to 4 separate macros, depending on the key's Shift state (Fn, SHIFT Fn, CTRL Fn and ALT Fn). To execute an FKey Macro, press the desired Shift state key, hold it down, and strike the Fn key.

The first 14 characters of each FKeys are displayed in 4 columns corresponding to the shift states described earlier. The status line at the bottom of the window displays summary instructions on how to display and/or edit each series of macros, load an alternate key definition file, or exit the ALT J screen.

To view the complete key definitions for a given shift state, press the number (1-4) corresponding to that state (1=Normal, 2=Shift, 3=Ctrl, 4=Alt).

Editing Key Macros

To edit an FKey macro, press the number (1-4) corresponding to the key's shift state, as described above. The following edit screen will then be displayed (in the following example, the "3" key was pressed to display/edit ALT Fn key assignments):


Function Key Assignment
Definitions for Alt F-keys
F1 @SHELL MAP
F2 @SCRIPT SETCOLOR 7 1 "String passed to SZ"
F3 @DIAL Tmustang
F4 @EDIT
F5 @STAMP This will be put in the LOG file.
F6 @SHELLX DEL *.BAK
F7 Be right back ... Went to the kitchen ...
F8 I'm back.
F9 @DIAL TGenie Local
F10 @SCRIPT WHO
F11 $PASSWORD^M
F12 ^F
Valid Edit Keys : INS - Insert mode Toggle
DEL - Delete Character
← - Character Left
→ - Character Right
Special Characters : ^M = [ENTER]
↑ - Field Up
↓ - Field Down
^← - Word Left
^→ - Word Right
^~ = ½ second delay
Edit Function Key Entries F10-Save ESC-Exit with no changes

The [ALT][J] edit screen features a scrollbar cursor. Move the scrollbar with the up/down arrow keys to select the key definition to edit. The following section describes available macro keywords and commands in detail.

DOS Shell Macros

Two macro commands, @SHELL and @SHELLX allow you to quickly access DOS with the touch of a key. Any program, with the exception of those that attach themselves to DOS (TSR's) can be executed provided enough free memory is available.

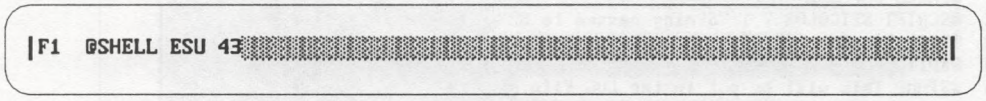
Examples:

```
F1 @SHELL CHKDSK
```

This will run the DOS Chkdsk program on drive C:. When complete, it will stop and prompt you to press a key before returning to QMODEM 4.5 (and erasing the screen).

```
F1 @SHELLX DEL *.BAK
```

This will delete all the files with the extension of ".BAK" and immediately return when completed.

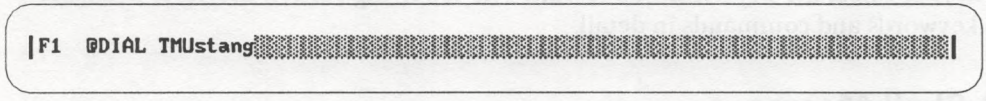


If you have a Vega VGA, this is the program used to switch video modes on the fly. The @SHELL and @SHELLX macros will detect video mode changes and reset QMODEM 4.5 when returning from DOS. A handy way to use those SuperEGA and SuperVGA cards to get higher screen resolutions and larger viewing areas.

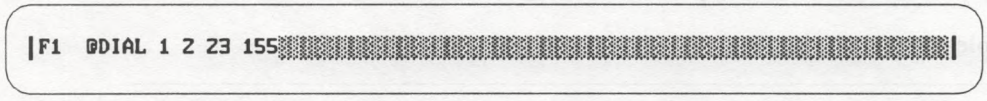
A Dial Macro

The @DIAL macro is just like invoking an [ALT][D][T] command. Any text following the @DIAL is parsed in the same way that [ALT][D][T] does. For more information, refer to the [ALT][D][T] section.

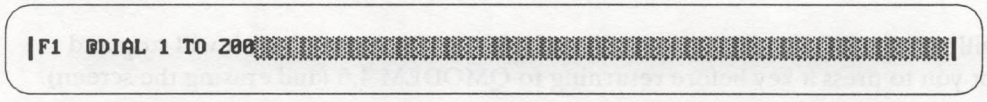
Examples:



This will search all entries for the text "MUstang". The search is not case sensitive. The Name, Number and attached Notes are searched. All entries that match are tagged and then dialing will start.



This will tag entries 1, 2, 23 and 155 to be dialed.



This will tag entry 1, then all the entries with the letter "O", and finally entry 200. Did you think it would dial all the entries in the phone book? Well, not yet anyway!

NOTE: @DIAL will do an implied "Untag-All" before applying the new tags.

An Edit Macro

The @EDIT macro allows you to quickly call up the internal editor to edit/view a file. If a filename follows @EDIT, that file will be brought up in edit immediately. If no filename has been specified, then you will be prompted for one.

Examples:

```
|F1  @EDIT
```

This will prompt for the filename to edit.

```
|F1  @EDIT @MHOST.PWD
```

This will edit the Internal HOST database file.

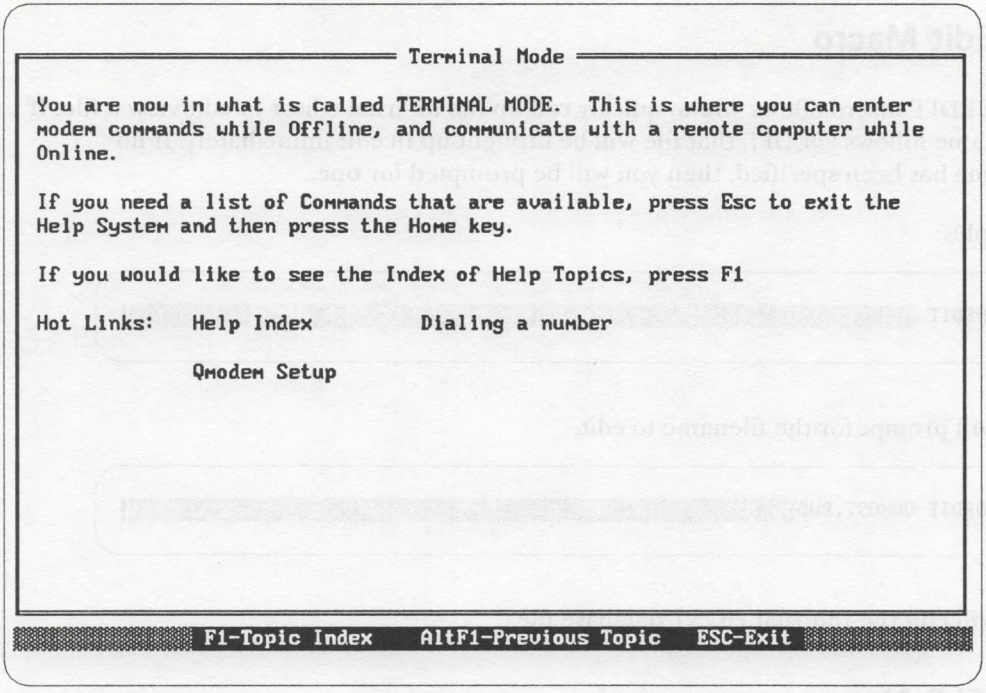
A HELP Macro

The @HELP macro allows you to call up a Help Screen from TERMINAL mode.

Examples:

```
|F1  @HELP
```

Something like this will appear:


Terminal Mode
You are now in what is called TERMINAL MODE. This is where you can enter modem commands while Offline, and communicate with a remote computer while Online.
If you need a list of Commands that are available, press Esc to exit the Help System and then press the Home key.
If you would like to see the Index of Help Topics, press F1
Hot Links: Help Index Dialing a number
Qmodem Setup
F1-Topic Index AltF1-Previous Topic ESC-Exit

From here, you could get more help on the three highlighted topics, press F1 for the Topic Index, or ESC to return back to terminal mode. The most common use of this will be to quickly get to the Topic Index.

NOTE: When new KEY files are created, the @HELP macro is not automatically placed in the F1 slot. You still have to do this for yourself.

A Script Macro

In the example above, entries ALT F2, ALT F10 and ALT F12 use the keyword @SCRIPT. The @SCRIPT macro command causes execution of the Script whose filename follows (the .SCR script file extension is not required). If the script requires parameters, they must be included in the key definition following the script name. The @SCRIPT macro, the script name, and script parameters must be separated by at least one space.

Examples:

```
|F1  @SCRIPT TEST1.SCR
```

This will call the script "TEST1.SCR". Because ".SCR" was not included in the filename, it is added by default.

```
|F1  @SCRIPT TEST1.SCR
```

This will call the script "TEST1". Because the "." is at the end of the script name, the default extension is not included.

```
|F1  @SCRIPT SETCOLOR 7 1 "String passed to S2"
```

This will call the Script SETCOLOR and pass it 3 parameters. Parameter 1 is the character "7", parameter 2 is "1" and parameter 3 is "String passed to S2". Since the third parameter is text with imbedded spaces, it must be enclosed within quotes.

A LOG Macro

The @STAMP macro causes the text following it to be recorded into the current LOG file, preceded by the current time and date. For more information on the QMODEM 4.5 LOG file, refer to the [ALT][O] Command.

Example:

```
|F1  @STAMP This will be put in the LOG file
```

The LOG file entry would look like this (except with the current time and date):

```
16:26:54 11-20-90 This will be put in the LOG file.
```

The special characters "^ ~" and "^ M" have no meaning when @STAMP is used.

The $PASSWORD Variable

When used in a key macro definition, $PASSWORD variable is replaced by the current entry's PASSWORD field (see [ALT][D]). Whenever a connection is made, the dialed entry's Password is automatically loaded into the $PASSWORD variable. Unlike all the other special macro commands which must appear first in the macro, $PASSWORD may be used anywhere within the macro text.

Example:

Let's assume that the word "QMODEM!" is the password for the entry we have just connected to and the following was coded for [ALT][F11]:

```
|F1  My password is $PASSWORD
```

After the connection is made, pressing [ALT][F11] would send the following:

```
My password is QMODEM
```

Loading a new Key file

Pressing the "L" key while in the main [ALT][J] screen will load a new .KEY file, if found. If the specified .KEY file does not exist, QMODEM 4.5 will issue a prompt for its creation. That's new key definition files are made.

[ALT][K] Changing COM Ports

The [ALT][K] commands is used to switch the active serial communications port. After pressing [ALT][K], the following window is displayed:

```
Set Communications Port
Active Port is COM1

1  COM1  Base(03F8) Irq(04)
2  COM2  Base(02F8) Irq(03)

Your choice :
```

QMODEM 4.5 supports up to 8 serial communication ports (COM1 through COM8). Only the ports specifically defined in your setup will be identified in the [ALT][K] menu. In the above example, ports 1, 2 and 3 were defined during installation.

To select a new communication port, press the desired number (1-8). Once the new port is selected, the current port will be closed and the new one opened. Communication parameters (baud rate, parity, start/stop bits) will remain unchanged. To change the communication parameters, use the [ALT][P] command.

[ALT][L] Changing the Logged Drive

"Logged Drive" refers to the default drive at the time QMODEM 4.5 was started. This drive may be changed by using the [ALT][L] command. Pressing [ALT][L] displays the following prompt window:

```
Change Log Drive
Logged Drive is  : F
Enter new Drive  :
```

To select a new default drive, type its drive letter and [ENTER].

The new drive will be verified before proceeding. If the drive is invalid, a message to that effect will be displayed and a new drive prompt will be issued. Pressing [ESC] will cancel the drive change request.

[ALT][M] Music Toggle

Music will be generated on the PC's speaker only if the following conditions are met:

1. ANSI terminal emulation is active (see [ALT][G]).
2. The Music Toggle is ON (see [ALT][M]).
3. QMODEM 4.5 receives encoded music data.

If any of the above condition is not met, QMODEM 4.5 will disregard encoded music information. To be recognized by QMODEM 4.5, encoded music data must conform to the following format:

```
] ESC [ M .....music codes..... ^N
```

Music codes are those used in the BASIC language PLAY statement (please refer to your BASIC language manual for further information on the PLAY statement). Music strings must end with the CTRL N (^N) character. If the ^N character is missing, it is assumed that the following text, up to 255 characters, is playable music. It might not sound too good, however.

ALT N Invoking the Setup Menu

Almost all of QMODEM 4.5's operational parameters can be customized. You may change the colors, upload or download directory paths or even add an external protocol without leaving QMODEM 4.5.

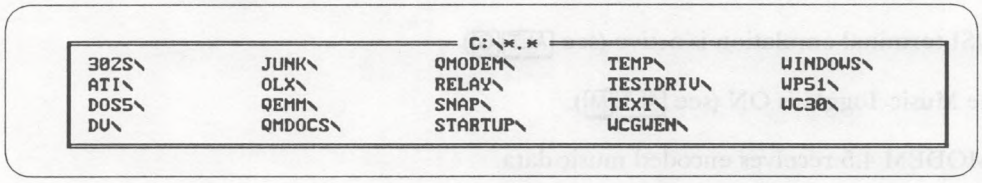
To use the ALT N command requires that enough free memory be present. If this is not the case, you must exit QMODEM 4.5 via the ALT X command and run the Qinstall program externally.

Refer to the SETUP section at the beginning of the manual for complete installation instructions.

ALT O Changing Subdirectories

By definition, a directory listing request (see ALT W) will display the current subdirectory. However, the default subdirectory is that which was active when QMODEM 4.5 was started. In order to view the contents of other directories, the current directory must be changed via the ALT O command.

When pressing ALT O, the following windows are displayed:



This is a Pick List window with 5 columns. The top of the window shows the current subdirectory. The entries in the pick list are possible subdirectories that can be selected as the new current directory.

Move the scrollbar to the entry and press [ENTER] to make the change. The top of the window will also change to reflect this. When the top of the window shows where you want to be, press [F10] to save. At any time, you can press [ESC] to return to your original starting point.

[ALT][P] Com Port Settings

The [ALT][P] command allows immediate changes to serial communications parameters. Pressing [ALT][P] displays the following window:

```
Communications Port Setup
Port COM1    2400,8,N,1

     Speed              Parity      Data     Stop
A - 110    F - 9600     K - Even    P - 7    R - 1
B - 300    G - 19200    L - Odd     Q - 8    S - 2
C - 1200   H - 38400    M - Mark
D - 2400   I - 57600    N - None
E - 4800   J - 115200   O - Space   Your choice :
```

Select the new parameters by pressing the corresponding option letter. If an error was made, pressing [ESC] restores the previous parameters and exits the [ALT][P] window. Pressing [ENTER] completes the parameter changes and exits the window. For example, say we want to set the port to 1200,7,E,1 and the current setting is 19200,N,8,1. You would press the letters C and K and press [ENTER]. You might be wondering, why didn't you need to press P to set 7 data bits? Because when either K or L is selected, it forces P.

[ALT][Q] QuickLearn Script Recorder

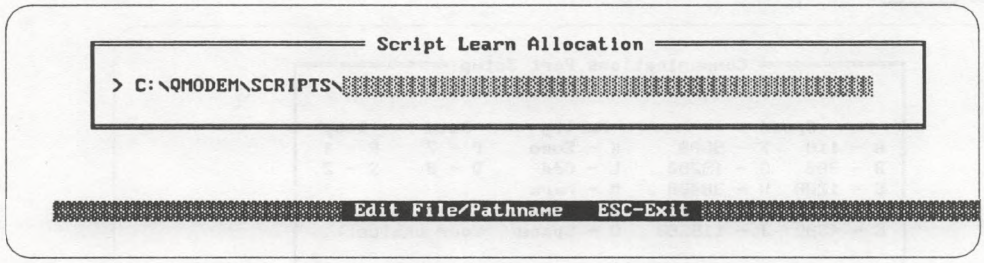
The QuickLearn Script Recorder is much like a video camera. As it records your interactions, it creates a Script which can be replayed later to replicate the session while QuickLearn was active. [ALT][Q] is a toggle; if the QuickLearn recorder is not active, it is started. If it is active, it terminates and the Script is saved.

In a nutshell, QuickLearn stores incoming data internally until you type information yourself. QuickLearn assumes that your data was entered in response to a prompt or question from the system you are connected to. The last 32 characters received are assumed to be the prompt to which you are responding, which will be reflected in the final script as a WAITFOR command. In turn, the entire contents of your response will be included in the script as a SEND command.

The "Q" tag was mentioned in the Dialing Directory section (ALT D command). If an entry is tagged by pressing "Q", the dialer will start QuickLearn automatically — but only if a Script file name is defined and the file itself does not exist —. As a result, script recording starts the instant the connection is established.

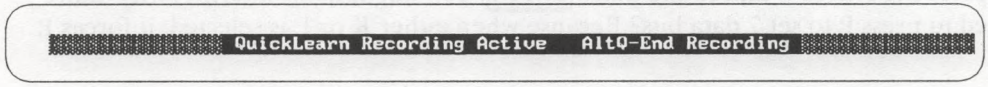
What if you are already on-line and want to create a script to perform a repetitive function? You would invoke ALT Q !

When pressing ALT Q, QMODEM 4.5 displays the following script file allocation window:

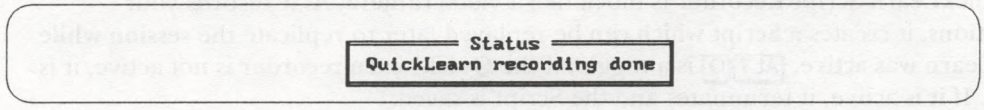


Type the desired script file name and ENTER. If the script already exists, an overwrite prompt will be displayed. You may chose to overwrite the prompt, or select a new name for the script. If the script file is not found, it will be created.

While QuickLearn is active, the status line is changed to the following:



When you are finished recording a script, press ALT Q again. QMODEM 4.5 will display the following status window, after which the standard Status Line will be restored.



QuickLearn saves the state of QMODEM 4.5 environment variables at the beginning of each Script. These variable include toggles such as Split-screen mode (SPLIT), Duplex setting (ECHO), as shown below:

```
;
; QuickLearn Script generated at 14:41:51 on 08-13-1990
```

```
; May require editing before use.
;
Graphics ANSI
TurnON 8_BIT
TurnOFF LINEFEED
TurnON XON/XOFF
TurnON NOISE
TurnOFF MUSIC
TurnON SCROLL
TurnOFF PRINT
TurnOFF ECHO
TurnOFF SPLIT
TurnOFF BS_DEL
TimeOut 30 ; Set Waitfor for 30 seconds
```

This sample was created by pressing [ALT][Q], entering a script filename, and then pressing [ALT][Q] again to save the file.

The top of each Quicklearned script contains a time and date stamp, followed by the commands needed to restore the environment at the time the script was recorded. Note the second line: the script may require editing before use.

QuickLearn also forces a default script TIMEOUT command of 30 seconds (the last line of the sample script). This default value is hard-coded in QMODEM 4.5 and can only be changed by manually editing the script. The default value is probably higher than necessary. Set this value to the longest estimated time the script will have to wait on data from the other system; if the delay exceed the TIMEOUT value, the script will be canceled automatically.

As QuickLearn records the session, it may capture text strings which contain variable data, such as time and/or date information. A good example would be a script created while logging on to a Bulletin Board System (BBS). Many BBS's feature command line prompts which include time used and time remaining for the current session. The values recorded in the original script may never be matched by the values received when the script is replayed.

For example:

```
WaitFor "56 min. left) Qmodem Conference Command?"
Delay 100
Send "R S NS^M"
```

Needless to say, the script will ONLY work if there are EXACTLY 56 minutes left. Likely, the WAITFOR command will wait forever for a prompt that will never come. To eliminate this problem, edit the WAITFOR command and remove variable information which is likely to cause problems:

```
WaitFor "Conference Command?"
Delay 100
Send "R S NS^M"
```

The " 56 min. left) Qmodem " was removed from the WAITFOR string, leaving a generic prompt which will work at any time, and in any conference.

Commands that are recorded

QuickLearn also records certain QMODEM 4.5 commands. Following is a list of supported QMODEM 4.5 commands, and examples of the generated script commands which replicate them:

ALT B Beeps & Bells toggle

```
TurnON NOISE
TurnOFF NOISE
```

ALT C Clears the screen

```
ClrScr
```

ALT D Dial an entry number

```
Dial "1"
```

ALT D L Load a new FON book

```
LoadFON C:\QMODEM\QMODEM.FON
```

ALT E Half/Full Duplex toggle

```
TurnON ECHO
TurnOFF ECHO
```

ALT G Change current terminal emulation mode

```
Graphics TTY
```

```
Graphics ANSI
Graphics VT100
```

ALT H Terminate the connection

```
HangUp
```

ALT J L Load a new KEY file

```
LoadKEY C:\QMODEM\VT100.KEY
```

ALT K Change current COM Port selection

```
Port 1
```

ALT L Change current Logged Drive

```
Drive C
```

ALT M Toggle playing of MUSIC if detected

```
TurnON MUSIC
TurnOFF MUSIC
```

ALT O Change current Subdirectory

```
CHDIR C:\QMODEM\SCRIPTS
```

ALT P Change current Baud Rate

```
SETCOMM 19200 8 NONE 1
```

ALT R Execute the DOS shell

```
DOS "Command"
BIGDOS "Command"
```

ALT S Toggle the Split Screen mode

```
TurnON SPLIT
TurnOFF SPLIT
```

ALT U Toggle the Scroll-back capture

```
TurnON SCROLL
TurnOFF SCROLL
```

ALT V View a File with an external program

```
DOS "LIST filename"
```

ALT X Exit the Script AND QMODEM 4.5

```
SYSTEM X
SYSTEM Y
```

ALT Y Delete a File

```
DOS "DEL filename"
```

ALT Z Toggle the Xon/Xoff flow control

```
TurnON XON/XOFF
TurnOFF XON/XOFF
```

ALT 1 Toggle the Backspace/DEL key output

```
TurnON BS_DEL
TurnOFF BS_DEL
```

ALT 2 Set 80x25 line mode for EGA/VGA

```
EGA 25
```

ALT 4 Set 80x43/50 line mode for EGA/VGA

```
EGA 43
```

ALT 8 Toggle the Hi-Bit filter

```
TurnON 8_BIT
TurnOFF 8_BIT
```

ALT 9 Toggle the Printer Echo

```
TurnON PRINT
TurnOFF PRINT
```

ALT 0 Toggle the LOG file on/off

```
TurnOFF LOG
LOG C:\QMODEM\QMODEM.LOG
```

SHIFT Tab Toggle the Add Linefeeds

```
TurnON LINEFEED
TurnOFF LINEFEED
```

CTRL HOME Toggle the Capture file on/off

```
TurnOFF CAPTURE
CAPTURE C:\QMODEM\CAPTURE.TXT
```

CTRL END Send the UART BREAK signal

```
BREAK
```

PgUp / CTRL PgUp Upload (send) a file

```
UPLOAD PROTOCOL [Filename]
```

PgDn / CTRL PgDn Download (receive) a file

```
DOWNLOAD PROTOCOL [Filename]
```

Fxx Function Key macro execution

```
FKey 13 [shift F1 key]
```

Putting it all together

Now that the basics have been covered, let's go over a sample QuickLearn recording session. The scripts were recorded while calling the MUSTANG SOFTWARE HQ! BBS Home of QMODEM.

First, a little advance information: we will call using the ALT D directory with an attached script name of "MUSTANG". The Password field in ALT D for the Mustang entry will be used to link to an FKey macro (F10 in this example).

In the Function Key setup (ALT J), we must edit the F10 key to contain the string "$PASSWORD^M". Once this is done, we can press ALT D and tag the Mustang entry with a "Q" to invoke QuickLearn.

In this example, the FKey assignments are blank. Our F9 entry should look like:

```
                    Function Key Assignment
     Normal              Shift               Ctrl                Alt
F1   @HELP          F1                  F1                  F1
F2                  F2                  F2                  F2
F3                  F3                  F3                  F3
F4                  F4                  F4                  F4
F5                  F5                  F5                  F5
F6                  F6                  F6                  F6
F7                  F7                  F7                  F7
F8                  F8                  F8                  F8
F9                  F9                  F9                  F9
F10 $PASSWORD^M     F10                 F10                 F10
F11                 F11                 F11                 F11
F12                 F12                 F12                 F12

 Key File is C:\QMODEM\ANSI.KEY

 1 - Normal   2 - Shift   3 - Ctrl   4 - Alt   L - Load    ESC - Exit

 Your Choice ?
```

The [ALT][D] screen is also blank except for the first directory entry for the Mustang Software HQ! BBS. The second screen snapshot shows the "O"ther page of the directory with the Password field "MyPassword!".

```
                              Phone Book
 Page  1 of C:\QMODEM\QMODEM.FON
 Total Tags > 1                          Prefixes > ABDE
[D]   Name                               Number          Port       Script
1   Q MSI HQ! BBS system                 1-805-395-0650   2400 8N1  MUSTANG.SCR
2                                                         2400 8N1
3                                                         2400 8N1
```

```
                              Phone Book
 Page  1 of F:\GWEN\QMID\QMODEM.FON
 Total Tags > 1                          Prefixes > ABDE
[D]   Name                               Password        LastCall    Total  P D
1   ≡ MSI HQ! BBS system                 MyPassword!     02-03-92    1902   Z F
2                                                        -  -        0      X F
3                                                        -  -        0      X F
```

Wherever information was entered in response to a prompt, it is followed by a "<-(n)" tag. Following is a review of the above session:

```
WILDCAT! Copyright (c) 87, 91 Mustang Software, Inc. All Rights Reserved.    Reg-
istration Number 86-0001.  v3.02P. (PROFESSIONAL) Node 35

Connected at 2400 bps.  ANSI detected.
            You have connected to the MSI HQ BBS System
New phone numbers are available for registered and non-registered callers.
   See Bulletin 6 for complete phone rotation, and numbers for all 15 lines.
                  ~~~~~~~~~~~~~~~~~~~~~~

 You have connected to a public access node of the MSI HQ BS.
  If you are a registered QMODEM user or WILDCAT! Sysop , see
   Bulletin 6 for the private access high-speed numbers.

 The public access HST number is 805-334-2269 (3 nodes).
What is your first name ? John                    <--(1)
What is your last name  ? Friel                   <--(2)
Looking up "JOHN FRIEL"... Please wait.

Welcome JOHN FRIEL from MUSTANG SOFTWARE.

Password? [******        ]                       <--(3)

Good afternoon, John, you are caller number 405,140.

        WELCOME TO MUSTANG SOFTWARE, INC.
WILDCAT! Version 3          Qmodem Version 5

                  MSI -  Bringing it all together in '92
                  ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~

-Pause- [C]ontinue, [N]onStop, [S]top? [C]                <-(4)
No bulletins have been updated since your last call.
Would you like to view the bulletin menu? [N]             <-(5)
John, your quote for today is:
"After trying just about every shareware bbs on the market I decided to register
with Mustang Software...Wildcat! Truly a work of art..."
  -"Last Chance bbs" Phila. Pa...215-637-0474...running with Hst 14

No new personal mail found.

Press [ENTER] to continue?                                <-(6)

Conf: "[0] - Private E-Mail ONLY", time on 1, with 997 remaining.
MAIN MENU: [M F C B P I O V Y S U D N G H ? 1 J E Z W T] ? [ ]



Conf: "[0] - Private E-Mail ONLY", time on 7, with 979 remaining. MAIN MENU: [M F
C B P I O V Y S U D N G H ? 1 J E Z W T] ? [ ]
```

1. John [ENTER] Entered my first name.
2. Friel [ENTER] Entered my last name.
3. [F10] Pressed the F10 key to send the password.
4. c [ENTER] Continue from -Pause- prompt
5. n [ENTER] Skip the bulletin menu
6. [ALT][Q] Pressed [ALT][Q] to end QuickLearn!

And QuickLearn generated the following script:

```
;
; QuickLearn Script generated at 15:19:10 on 08-13-1990
; May require editing before use.
;
Graphics TTY
TurnON 8_BIT
TurnOFF LINEFEED
TurnOFF XON/XOFF
TurnON NOISE
TurnON MUSIC
TurnON SCROLL
TurnOFF PRINT
TurnOFF ECHO
TurnOFF SPLIT
TurnOFF BS_DEL
TimeOut 30 ; Set Waitfor for 30 seconds
Waitfor "What is your first name ?"
Delay 100
Send "John^M"
Waitfor "What is your last name ?"
Delay 100
Send "Friel^M"
Waitfor "Password? [          ]"
Delay 100
FKey 10
Waitfor "-Pause- [C]ontinue, [N]onStop, [S]top? [C]"
```

```
Delay 100
Send "C^M"
Waitfor "Would you like to view the bulletin menu? [N]"
Delay 100
Send "N^M"
Waitfor "Press [ENTER] to continue?"
Delay 100
Exit
```

NOTE: The "<- (n)" tags were added for reference purposes only.

ALT R DOS Shell

If enough system memory is available and a copy of your Command Shell (usually called COMMAND.COM or 4DOS.COM) can be located via the COMSPEC= environment variable or in the DOS PATH, you may Shell to DOS. Pressing ALT R yields the following screen:

```
QMODEM 4.5 «—» DOS Shell
Swapping 442743 bytes to EMS
Type EXIT to return to QMODEM 4.5 !


The COMPAQ Personal Computer MS-DOS Version 3.31
(C) Copyright Compaq Computer Corp. 1982, 1989
(C) Copyright Microsoft Corp. 1981, 1987

C:\_
```

COMPAQ Dos 3.31 was being used on the machine that the snapshots were captured from. Your version of DOS and messages may vary.

You may notice that just below the top line, that QMODEM 4.5 swapped 442743 bytes to EMS. Your hardware is interrogated to see if EMS memory exists, and if so, how much EMS is free. If sufficient memory EMS is available, then most of QMODEM 4.5 and the memory it is using is swapped to EMS leaving a small 4K kernel resident. The following screen snapshot using MAPMEM shows the amount resident:

```
 PSP  blks bytes ouner    command line        hooked vectors
----- ---- ----- -------- ------------------- ------------------------------
0008   1    5296 config
0CA4   3    4752 command                      2E
0DE1   3   78336 DV
0E07   1      64 N/A
210B   3    2912 N/A
21BE   2   23120 GRAB                       08 09 13 21 28
2765   2    4512 QMODEM  <--- Kernel resident *
2881   3    2816 N/A                         22 24
2934   2  478512 free    <--- FREE MEMORY!!!

block   bytes   (Expanded Memory)
-----   ------
    0       0
    1   65536
    2  245760   <--- QMODEM used this much to store the OVR file
    3  458752   <--- Swapped to EMS during the Shell
 free  458752
total 1228806
C:\QMODEM >
```

Now, if there hadn't been that much EMS available, QMODEM 4.5 would have tried to allocate a file on Disk to swap to. The net effect would have been the same. The only difference is that swapping to/from EMS is a lot faster.

All standard DOS commands are available from within the DOS Shell. For example, you could copy files, format a disk, or run a separate program as long as there is sufficient memory available to do so.

To return to QMODEM 4.5, type "EXIT" and press [ENTER] at the DOS prompt. The screen will be restored to its previous status.

Possible Error conditions

While in the DOS Shell, you may not execute programs which attach themselves to DOS, terminate, and stay resident (IE. SideKick). If such a program is loaded, the following message will be displayed when you attempt to EXIT back to QMODEM 4.5 :

```
A TSR was loaded while executing the DOS Shell and QMODEM 4.5 can-
not recover.

A Reboot ([CTRL][ALT][Del]) is recommended at this time.

Tap any key to continue
```

At this point, you can return to QMODEM 4.5, but only long enough to save any open files and re-boot the system. Your on-line session will not be disturbed and you can get right back on-line by executing QMODEM 4.5 again.

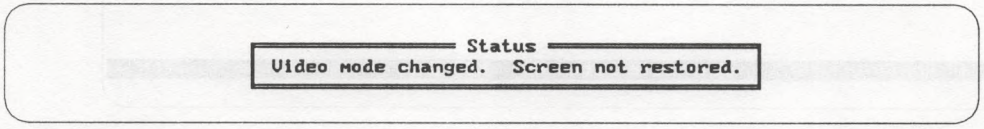
FON File Protection

When returning from a DOS shell, a check is made on the Phone Directory (.FON file) to see if it has been updated. If it has, then it is automatically reloaded. This feature was implemented to allow execution of external phone book editors such as QFE from Sunflower Systems.

Alternate Screen Sizes

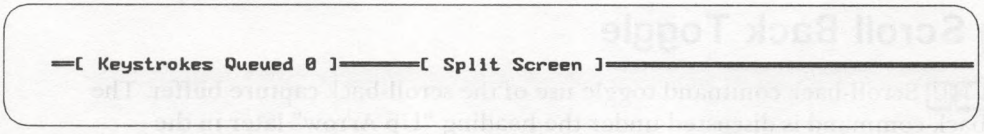
The DOS Shell is also able to recognize a screen size change (feasible with EGA and VGA displays), and will adjust accordingly. If an external program changes the size of the screen while in the DOS Shell, that change will be recognized upon return.

Under normal circumstances, QMODEM 4.5 restores the screen saved before the DOS Shell was invoked. If a size change is detected, you will see a Status window displays that says:



ALT S Split Screen Mode

In split-screen mode, QMODEM 4.5 divides the screen into two areas to separate incoming and outgoing text:



The larger section at the top of the screen is reserved for incoming text received from the remote computer. The smaller section at the bottom of the screen echoes transmitted keystrokes. Current keystrokes are displayed on the screen's dividing line.

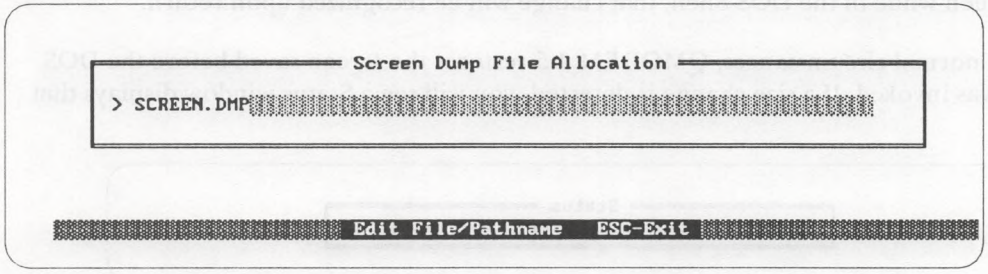
QMODEM 4.5 implements a true split-screen mode, complete with a 254 character input buffer. Pressing ENTER immediately transmits the buffer and clears it for additional input. Stored keystrokes are displayed on the screen's dividing line. The characters "^M" can be used to substitute an ENTER in the string.

If another terminal emulation other than TTY is in effect when [ALT][S] is pressed, it is remembered so it can be restored when split screen is exited. The split screen mode requires TTY emulation to operate correctly.

If you use FKey macros, ^M will not cause the contents of the character buffer to be sent; the text stored in the FKey macro will be appended to the buffer.

[ALT][T] Screen Dump

Screen contents can be copied to a disk file via the [ALT][T] command. When pressing [ALT][T], the following window is displayed:



The default file name is that defined in the configuration and may be changed at the [ALT][T] prompt. The screen contents are added to the end of the screen dump file and are preceded with a Time and Date stamp (if [ALT][N][F][T] is set ON). If the dump was successful, a confirmation message in a status window will appear.

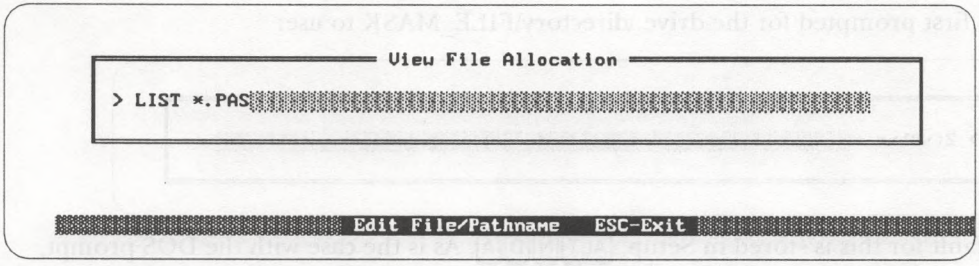
[ALT][U] Scroll Back Toggle

The [ALT][U] Scroll-back command toggle use of the scroll-back capture buffer. The Scroll-back command is discussed under the heading "Up Arrow" later in the documentation.

The default state is to have the Scroll-back capture active. All data displayed on the screen is stored in the scroll-back buffer for later recall. When pressing [ALT][U], a Status window is displayed showing the new state.

[ALT][V] View a File

Pressing [ALT][V] invokes the file viewer/editor program. When that command is issued, the View/Edit file allocation window is displayed:



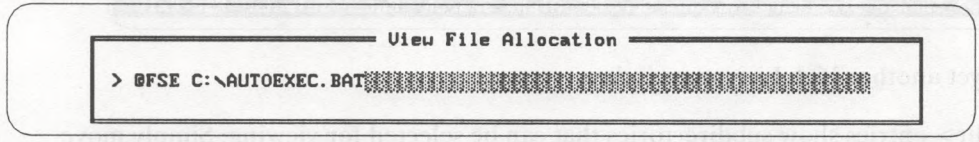
ALT V can be thought of as a flexible gateway used to browse or edit a file. The above example assumes use of Vern Buerg's popular LIST program, available on most BBSs. LIST is sophisticated replacement for the DOS TYPE command.

Although intended for file browsing or editing, the ALT V gateway can be used to invoke any program, even WordStar! The program to be called by ALT V can be defined in Setup (ALT N F V) or can be changed on the fly. For example, you could type "DEL *.BAK" and ENTER to delete all the files in the current directory with an extension of ".BAK".

If an external program is specified, a DOS Shell is used and sufficient memory must be available.

ALT V also accepts two special commands: @FSE and @EDITOR. If you specify either of these at the beginning of the command, the following actions will take place:

@FSE uses the internal editor to edit/view the file. This also assumes that the text following is a valid DOS filename. Following is an example of ALT V use to edit the AUTOEXEC.BAT file in the C:\ directory:

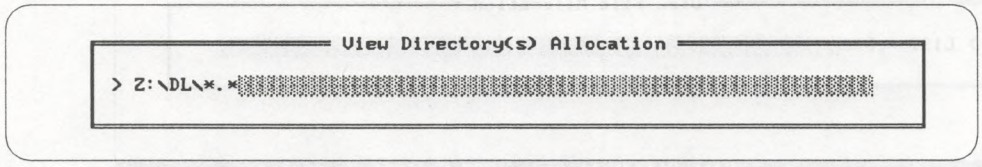


@EDITOR uses the user-defined editor rather than the internal editor in any function where the internal editor would have been used, such as editing the attached Note files in the dialing directory (ALT D N) or the attached Scripts (ALT D V).

ALT W Disk Directory

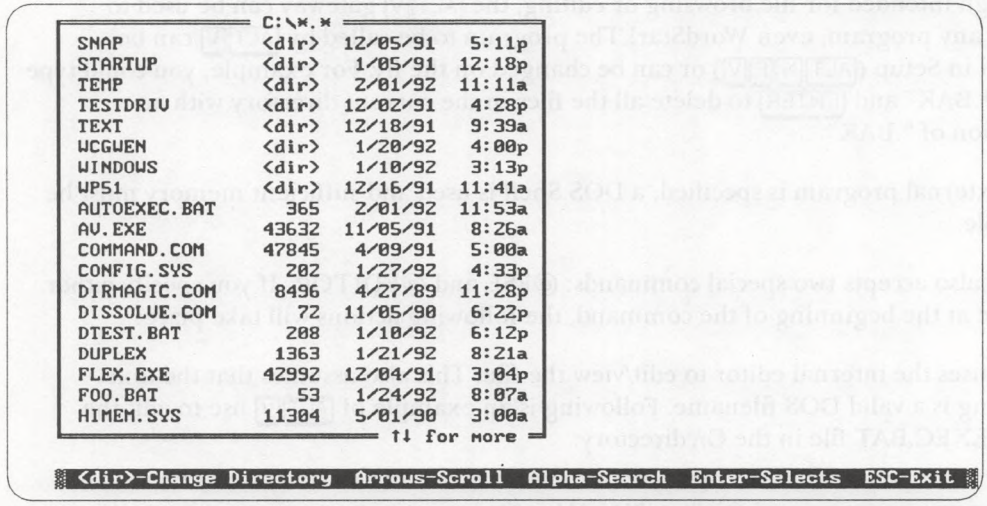
The ALT W command is QMODEM 4.5's internal version of the "DIR /p". DOS command. This will produce a file listing of the current directory (see the ALT W command to change directory).

You are first prompted for the drive:\directory\FILE_MASK to use:



The default for this is stored in Setup, [ALT][N][D][A]. As is the case with the DOS prompt, you may change the directory listing argument, with all standard wildcard "*?" characters being supported.

Then, you will get the [ALT][W] window:



This is yet another Pick List type window.

The <dir> entries show subdirectories that can be selected for viewing. Simply move the scrollbar to this type of entry and press [ENTER]. The window will clear and show you the new subdirectory files that match the given mask. In the above example, *.* was used as the mask.

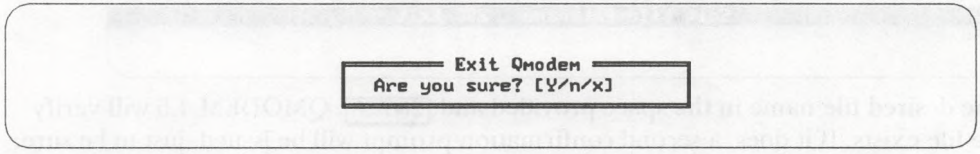
You can scroll through the window with the standard direction keys. [Up], [Down], [PgUp], [PgDn], [HOME] and [END] all work the way you would expect them. You can also search lengthy entries by using Alpha keys. Just type the letters of the file you are looking for. As you type, the scrollbar moves to the first entry that matches the list of characters. If you type too many characters and no match is found, the lower left will clear with the scrollbar on the last entry that matched. Typing again repeats the search sequence. You

can quickly clear the search pattern by pressing the [Backspace] key. This is one intelligent Pick List!

You will also note, the status line mentions Enter-Selects. This Pick List does double duty, so in this case, the [ENTER] goes back to the FAW window so you can enter a new Drive:\directory\Mask.

[ALT][X] Exiting QMODEM 4.5

To exit QMODEM 4.5, press [ALT][X]. The following prompt window will be displayed:



Replying "Y" to the prompt will immediately terminate QMODEM 4.5, close the serial port (and hang up the modem if a connection was active), and close the Capture and LOG files if they were opened.

Entering an "X" will cause QMODEM 4.5 to exit to DOS and leave the DTR line active, which does NOT hang up the modem and retains the connection if one was active. This allows you to perform any other process, such as run an external program which requires more memory then is available via the QMODEM 4.5 DOS Shell facility.

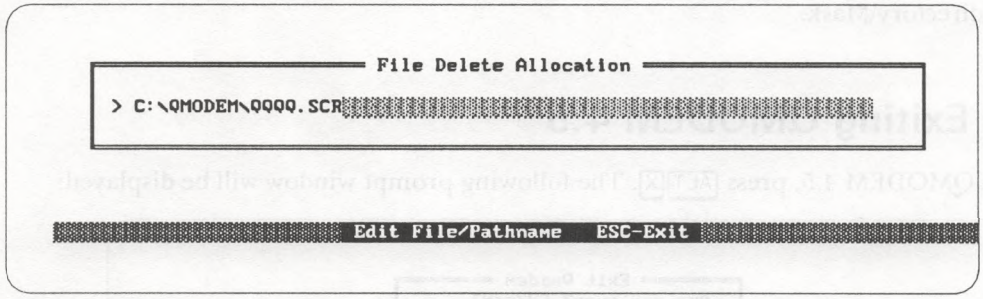
When the "X" option is used and you are on-line, the environment settings are saved in a file called QMODEM.INI. The next time QMODEM 4.5 started, the values stored in QMODEM.INI will override the default configuration, and QMODEM.INI is deleted. If QMODEM 4.5 is NOT restarted, the QMODEM.INI file will remain and should be deleted if not needed.

Replying "N" to the prompt or pressing [ESC] cancels the exit request and returns to the Terminal mode screen.

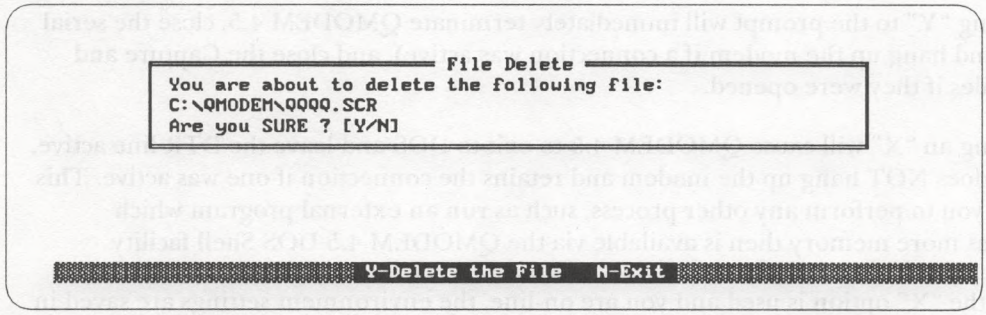
Data received after you exit via [ALT][X][X] will be lost. Use this exit option when you are sure no data will be sent by the remote computer. Most modems and many remote computers will disconnect if the connection remains inactive for an extended period of time. Be aware of these limitations when exiting.

ALT Y Delete a File

ALT Y is a powerful command used to permanently delete a file. When pressing ALT Y, the File Delete Allocation Window will be displayed:



Type the desired file name in the space provided and ENTER. QMODEM 4.5 will verify that the file exists. If it does, a second confirmation prompt will be issued, just to be sure:

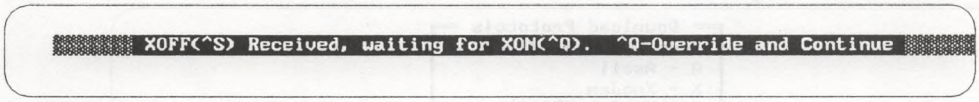


This is your last chance. If you erase the wrong file, issue the ALT R DOS Shell command immediately and attempt to recover the lost file with a program such as Norton's Undelete, PCTools, Mace Utilities etc. There is no UNERASE facility built into QMODEM 4.5.

ALT Z Xon/Xoff Toggle

ALT Z toggles Xon/Xoff flow control. Xon/Xoff is a simple means of controlling data flow, used mostly by mini and mainframe computers. With Xon/Xoff in the OFF mode, a buffer overrun may occur on long ASCII text transmissions (incoming data will exceed the internal buffer capacity).

If Xon/Xoff is ON and QMODEM 4.5 detects the Xoff (^S) code, the Status Line will change to the following:

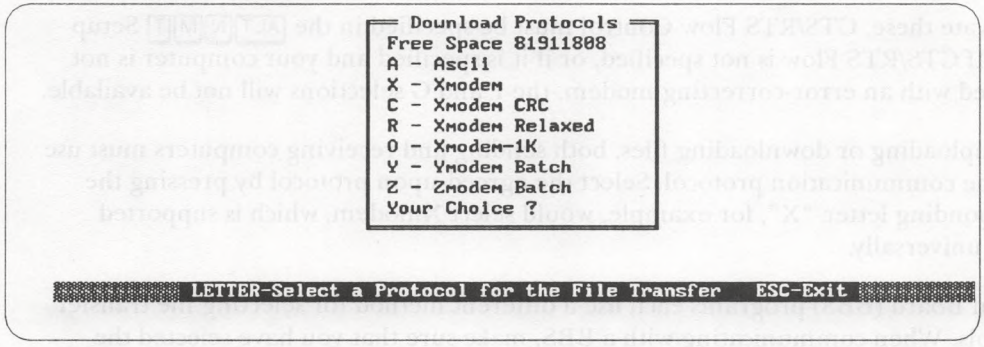


When the remote system is ready to receive more data, it will send the Xon (^Q) code and the window will disappear. If you believe there is a problem, you can manually restart the data transfer by pressing CTRL Q.

If you have the Status line disabled via ALT Minus, you will not see that you have received the XOFF. If you think you are locked up, it is always a good idea to try pressing ^Q once or twice to see if this was the problem.

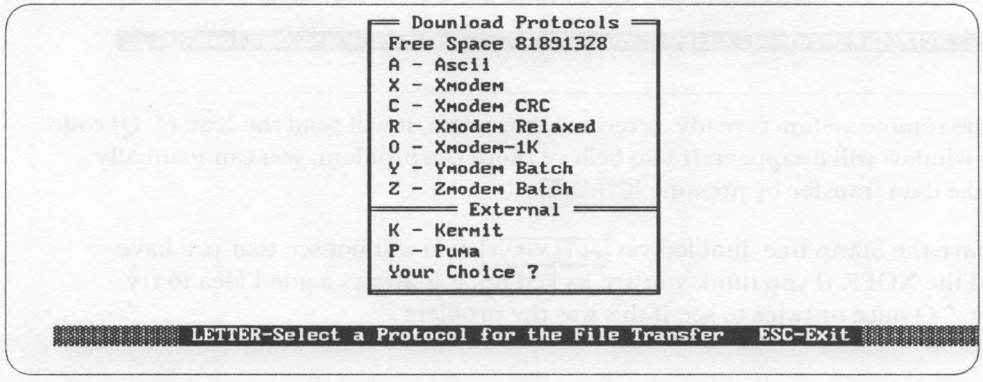
PgUp PgDn Uploading & Downloading Files

Selecting a protocol Selecting a protocol is the first step in a file transfer. Pressing PgUp (upload - send) or PgDn (download - receive) will display the protocol selection window:



The above window shows the PgDn protocol list. The only difference between the PgUp and PgDn window is the PgDn window includes a free space check at the top. You will want to know how much free disk space you have when downloading files.

If external protocols have been defined in ALT N P, they will be displayed at the bottom of the protocol selection window:



The protocol selection windows both feature the "F" and "G" protocols (Xmodem-1K/G and Ymodem/G). These are "Hardware-handshaking" protocols which can only be used if your computer is equipped with an error-correcting modem (a modem with supports MNP).

To activate these, CTS/RTS Flow Control must be specified in the [ALT][N][M][T] Setup menu. If CTS/RTS Flow is not specified, or if it is specified and your computer is not equipped with an error-correcting modem, the F and G selections will not be available.

When uploading or downloading files, both sending and receiving computers must use the same communication protocol. Select the agreed-upon protocol by pressing the corresponding letter. "X", for example, would select Xmodem, which is supported almost universally.

Bulletin Board (BBS) programs each use a different method for selecting file transfer protocols. When communicating with a BBS, make sure that you have selected the proper protocol on the BBS System before making the protocol selection in QMODEM 4.5.

Internal Protocols

ASCII

The ASCII protocol is used primarily for on-line text transfers. It does not support the transferring of binary data such as programs or compressed files. Attempting to do so is, well, crazy! ASCII does not perform any error-checking, which makes it very sensitive to line noise. Bursts of phone line interference will introduce stray characters which are not part of the data being transmitted. For this reason, ASCII transfers are not recommended unless they are used for specific purposes where that protocol is needed.

It is advisable to use XON/XOFF Software flow control with ASCII. Failure to do so may cause loss of data.

XMODEM

There are two XMODEM protocols currently in use. The original Xmodem uses a Checksum method to insure that the data received is the same as that which was sent. Checksum is a very simple error-detection method with an accuracy rate of 99.6%. Xmodem Checksum transmits 128-byte data blocks.

XMODEM CRC

Xmodem-CRC (Cyclic Redundancy Checking) is similar to Xmodem-Checksum, but uses a far more reliable error-detection algorithm (99.9969%.). In the event that the wrong Xmodem protocol was selected, QMODEM 4.5 will correct itself automatically, eliminating the need for aborting the transfer.

RELAXED XMODEM

Relaxed Xmodem is basically identical to Xmodem-Checksum, but error timing has been relaxed by a factor of 10. In other words, it takes ten times longer for an error condition to be generated. This protocol was designed specifically for CompuServe communications, due to the questionable implementation of Xmodem by that On-line Information Service.

XMODEM-1K

Xmodem-1K is a modified version of Xmodem CRC, which uses 1024-byte blocks as opposed to Xmodem's 128 byte blocks.

YMODEM

Ymodem is the true implementation of the YMODEM batch protocol and is referred to as YMODEM or YMODEM BATCH. This protocol supports the transfer of multiple files within a single session which does not require user intervention.

When using Ymodem, only one filename can be specified at a time. To allow multiple file transfers, wildcards must be used in the filename for uploads. For downloads, QMODEM 4.5 will automatically retrieve the names of the files being sent from their respective header records.

True Ymodem and Ymodem/G batch protocols include "Header Records" in the downloaded data. These records contain file-dependent information such as name, size, and date/time stamps. As a result, file names need not be specified prior to starting batch downloads. As an added benefit, the moving Transfer Completion Graph is updated during batch downloads since file sizes are known.

When the filename is extracted from the header block, it is checked to see if it will create a valid DOS filename. The Ymodem header was designed to be flexible and allow for non MS-DOS file naming conventions. Apple, Atari and Commodore computers are more liberal in their file naming conventions and these need to be converted when downloading these files.

Suppose you are calling a non-IBM BBS system and want to download one of their foreign files and you are using Ymodem as the protocol. QMODEM 4.5 converts their filename to one that is acceptable to MS-DOS on-the-fly.

The rules for the conversion are:

1. The last ".", if any, in the Header filename is where the new DOS filename extension will begin.

2. The first 8 character (or less, depending on the position of the "." in step 1) is converted. Periods (".") are replaced with dollar-signs ("$"), and spaces (" ") are replaced with underscores ("_").

Examples:

Foreign Filename	**Converted Filename**
STARTER.ARC.STV1.2	STARTER$.2
ST.DATAKIT.ARC.4	ST$DATAK.4
ST.SOUND.ARC.1.2	ST$SOUND.2
A LONG NAME.EXTENS	A_LONG_N.EXT

XMODEM-1K/G & YMODEM/G

These two protocols are identical to their non-/G counterparts. /G protocols do not perform any error detection and rely on the error-correction features of the modems. Modems equipped with internal protocols such as like MNP, LAP-B, and X.PC insure that communications are error-free. Hardware handshaking via the CTS/RTS signal lines must be enabled with such modems.

/G protocols will not be available unless the following is true:

1. CTS checking is enabled in the ALT N O T C Setup menu option.

2. The modem's CTS signal is enabled when the serial port is initialized.

Make sure that the modem does not force the CTS signal ON at all times. This will cause a modem buffer overflow resulting in an aborted transfer.

Xmodem-1K/G and Ymodem/G cannot re-send bad data blocks. In theory, there should be NO bad blocks of data in an error-free connection. If errors occur, they are likely to be cause by an improper setup in either the modem or QMODEM 4.5.

High-speed or Error-Correcting modems communicate with QMODEM 4.5 at the hardware level via the CTS/RTS interface. The modem cables used in conventional modems (IE 1200/2400, non-MNP units) may not carry all the necessary signals (pins could be missing). The wrong cable could prevent QMODEM 4.5 from detecting the CTS signal, and ignore the modem's hardware-handshaking capabilities.

When in doubt, use a serial cable with all 25 pins connected (a flat ribbon, 25-conductor cable). AT Users may use a 9-pin to 25-pin adapter with all 9 lines connected, attached to a 25-conductor cable as described above.

Zmodem

This is the popular streaming protocol put into the public domain by Telenet. Zmodem uses a variable sized block to transfer date over even the noisiest phone lines. Zmodem was designed as a Batch transfer protocol. As such, it shares the same transfer windows and allocation methods that the Ymodem protocol uses.

Should errors occur, Zmodem can tell the sending end just exactly where to restart. The real bonus to Zmodem is that it does not require a high-speed or error-correcting modem with MNP or V.42 to be effective. While it is not as fast as Ymodem/G or Xmodem-1K/G, it does perform well enough to have become a 'standard' in the industry.

One of the benefits of Zmodem is Crash Recovery. This allows an aborted file transfer to be restarted at a later time, without having to retransmit the already received portion of the file. A check is made to make sure the partial file has not changed. If it hasn't, then it picks up where it left off. It has, then the file transfer is restarted from the beginning.

External Protocols Due to their nature, external protocols do not have a seamless interface and operate differently from built-in protocols. When an external protocol is used, QMODEM 4.5 invokes the protocol's upload or download batch file which in turn executes the external protocol's file transfer program.

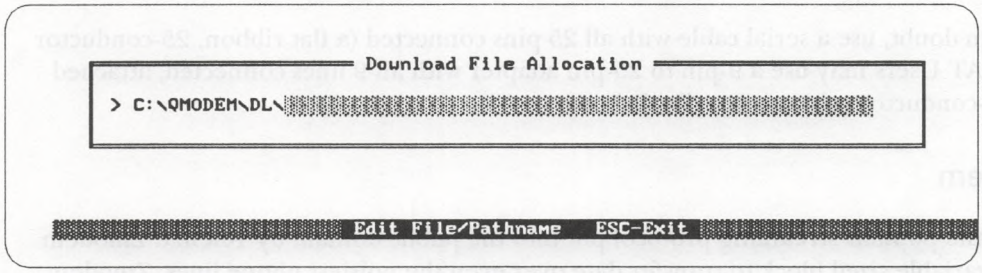
Since QMODEM 4.5 has no control over external programs, screen displays will be handled entirely by the external program. The screen will be cleared before control is passed to the external protocol, and once the transfer is complete, you will be returned to the standard QMODEM 4.5 terminal display.

For more information on installing External protocols, refer to the Setup (ALT N P) section. For protocol-specific information, refer to the external protocol's documentation.

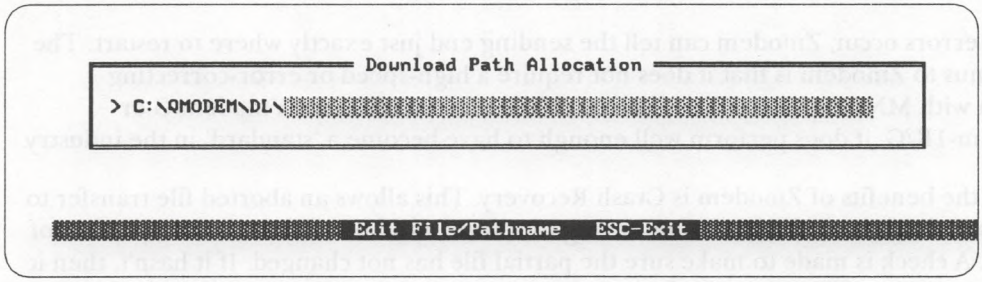
Download File Allocation

After selecting your protocol, you have to tell QMODEM 4.5 where to put the file and what to call it. If it is a Batch transfer protocol, then you only have to decide where to put the file. Batch transfers send the filename as part of the file.

The non-batch window looks like this:



The batch window looks like this:



Notice the Window titles. Non-batch transfer want a complete drive:\path\filename to be successful. Batch transfer want only the drive:\path. Remember, the filename has already been decided and will automatically be picked up as part of the file transfer.

QMODEM 4.5 has the ability to "pick" file names directly from the screen. A scan is made on the screen, from right to left, bottom to top for a valid file name. "Valid File Name" is defined as a 1- to 8-character text string followed by a period and a 2- or 3-character suffix. Spaces, semicolons, and the left and right margins are valid file name delimiters. Following are some examples of valid and invalid file names:

THISFILE.TXT	valid
README.1	invalid (not enough characters in suffix)
QMDMSST.ARC	valid
PROGRAM.THIS	invalid (too many characters in suffix)
MPROGRAM1.THIS	invalid (name too long)

If a suitable filename was not found, or if the one picked is not correct, the filename must be added or edited manually. Once the desired file name has been specified, press [ENTER] to start the file transfer.

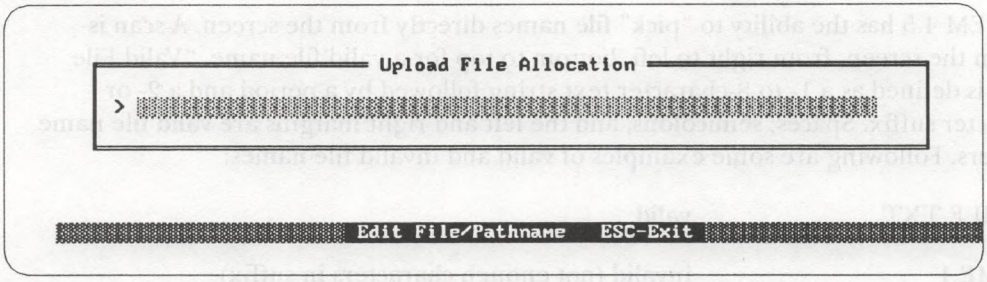
Upload File Allocation

Uploading files is similar to Downloading. You still tell the remote host what you are going to do before doing it. You also have to make sure you use the same protocol that you tell the host.

The [PgUp] protocol window is identical to the [PgDn] Down load window, with the exception that the Free Disk Space is not at the top. So, assuming you have told the remote system what protocol you are going to use, and the filename if necessary, you can begin your upload!

Once you have selected a protocol, you have to tell QMODEM 4.5 the filename(s) to use. The possibilities can be simple if you selected a non-batch protocol, to extensive for batch protocols.

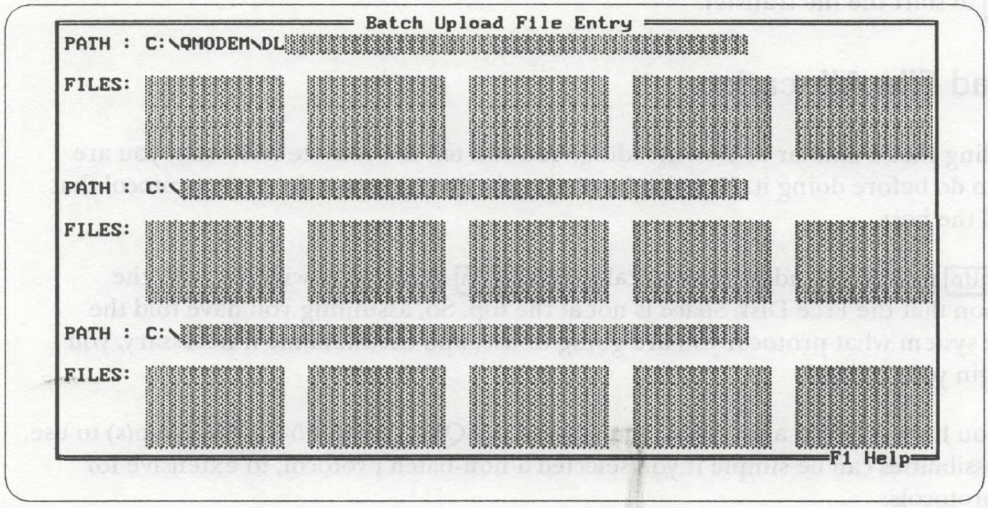
Non-batch and External protocol windows look like this:



You simply enter the complete drive:\path\filename of the file you are sending, and press ENTER.

Batch Entry Window (BEW)

Batch protocols are a different story. You get a much enhanced screen called the Batch Entry Window (BEW for short). The BEW looks like this:



The Batch Entry Window (BEW), used when uploading with a Batch Protocol, is divided into three groups, each group comprising a PATH and 20 FILES cells.

The 3 different PATH fields are automatically initialized to the values defined by the ALT N D 1, ALT N D 2 and ALT N D 3 in the Setup. The FILES cells are blank. The three groups work independently of each other. By this, we mean that you could specify files in the 1st and 3rd groups without having to specify any in the 2nd group. Maybe you only want to send from the 2nd group only, and that is fine too.

The PATH cells are like the FILES cells in that they can be changed within the window before uploading. You may decide to leave one of the 3 default paths blank, just in case you frequently upload from several different directories depending on who you call. This would save time clearing a PATH field all the time.

Each FILES cell can contain exactly one filename specification. 8 characters for the NAME, the PERIOD, and 3 characters for the EXTENSION. You do not have to use all 12 characters, however. Filenames such as YEAREND.WKS, REPORT.DOC, and SOURCE.C are all valid.

To really make them functional, each cell could include multiple wildcard characters. The wildcard characters * and ? can allow each cell to specify a group of files. Filenames such as MONTH??.WKS, *.PAS, and even *.* are valid! In these cases, all files matching the wildcard specification would be uploaded in the batch transfer.

Caution should be used to avoid duplication when using wildcards within the same group of cells. There is no checking done to see if a file matches one or more of the cells with wildcards. You could be sending the same file more than once in the same batch upload. If the 3 examples were placed in the same cell group, all the files matching the first two would be sent twice because the 3rd example, *.*, will send them all again.

The status line at the bottom of the screen lists these options if you entered the BEW with the [PgUp] key:

```
F2-Pick List  F3-Lst Found  F4-Clear  F10-Upload
```

If you used the [ALT][6] Key, you will see this:

```
F2-Pick List  F3-Lst Found  F10-Save to Disk  ESC-Exit
```

[F2] Pick List

When the cursor is in a FILES cell, you can press [F2] to open a Pick List. If the cell is blank, a default of *.* is used, showing all the available files in that PATH group. If the cell contains a filename with wildcard characters, such as *.PAS, then all the files that end in .PAS are shown in the Pick List. With the Pick List open, just move the scrollbar to the entry you want in that cell and press [ENTER]. The cell is then filled in with that filename. You can only tag one filename at a time from the Pick List.

[F3] Last Found

This will scan the underlying screen for the last valid filename (right to left, bottom to top) and place it in the current cell. You might use this when you have a file to upload,

and you have just told the remote system about the file. As long as it is on the underlying screen, you do not have to type the filename in again.

F4 Clear

This clears all fields in the BEW and resets the three PATH cells to the defaults specified in ALT N D.

F10 Upload

When you have pressed PgUp and selected either Y, G or Z, and you have 1 or more files defined, this will begin the upload.

F10 Save to Disk

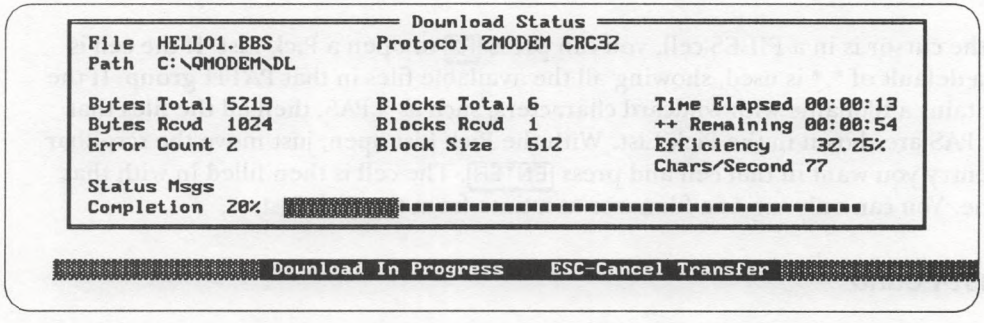
This will write out a file called QMODEM.BEW in the directory where the QMODEM.CNF file was found. It contains all of the information in the BEW. The BEW window will then close. The next time the BEW is opened, the QMODEM.BEW file is searched for and loaded back in if found.

ESC Exit

Exits the BEW and aborts any changes made.

Download Transfer Window

The download window is common throughout all the internal protocols, except ASCII. Let's look at the others first:



You probably won't find a better file transfer status window anywhere! Here is a breakdown of each field.

FILE

The name of the file being received. If it is a Batch download (Ymodem or Zmodem), then this is filled in automatically. Non-batch transfers allow you to enter the filename.

PATH

This is the drive and subdirectory where the File is being saved to.

PROTOCOL

The current transfer protocol being used.

BYTES TOTAL

This is the number of bytes that is being received. This field will say "N.A." if the protocol is non-batch.

BYTES RCVD

This is the number of bytes received so far.

ERROR COUNT

This is the number of errors recorded so far.

BLOCKS TOTAL

This is the number of blocks expected to be received. It is figured based on the Bytes Total divided by the Block Size. If it is a non-batch transfer, this will show "N.A.".

BLOCKS RCVD

This is the number of blocks received so far.

BLOCK SIZE

This is the current block size being used by the sending side. It is included because protocols like Ymodem and Zmodem can change their data block sizes on the fly.

TIME ELAPSED

This is the current elapsed time since the start of the download for the current file. Current is stressed because a batch transfer may have more than one file, and there is no global elapsed time kept.

++ REMAINING

This is the estimated remaining time in the transfer for the current file. If this is a non-batch transfer, this field will be blank.

EFFICIENCY

This shows you how efficient the protocol is. It is based on the current DCE Baud Rate as reported by your modem, and the number of bytes received against the elapsed time. Roll these all together, sprinkle with a little sugar, and out pops the efficiency! Seriously, if the modem has features such as data compression, the efficiency can rise above the normal 100% DCE rate. Remember, this is based on the DCE speed, not the DTE rate that the serial port may be locked at.

CHARS/SECOND

This is a by-product of figuring the Efficiency. When you know how many bytes have been received in a set number of seconds, you can easily figure the Character per Second. To convert this to a baud rate, multiply this by 10.

STATUS MSGS

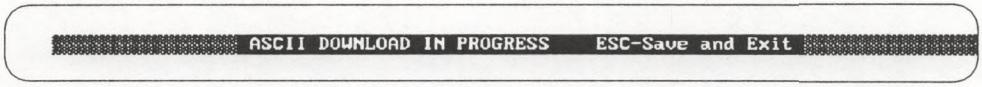
Status messages keep you posted on the progression of the transfer.

COMPLETION

Some people call this the gas gauge because it goes from Empty (0%) to Full (100%) as the transfer proceeds. This is just a quick visual check of how much is complete and how much further you have to go. Each block represents 2% of the entire file. If this is a non-batch transfer, this will not be available.

Download ASCII Window

When downloading with ASCII, you do not get a fancy window. Instead, the Status Line switches to the following:



The current terminal emulation stays in effect, and the screen remains unchanged. Except, all data received now is saved to the file you specified.

Upload Transfer Window

The Upload Transfer window is identical to the Download window, with two exception. Wherever the word RCVD appears, it is changed to SENT. Also, because all the file sizes are known in advance, there are no "N.A." fields.

Upload ASCII

During an ASCII Upload, the Status Line changes to keep track of the upload. Following is a sample of the status line partway through a file named 'SCRIPT' being uploaded:

```
Uploading SCRIPT  Sent = 819     Complete = 33%   ESC-Terminate
```

The screen uses whatever Terminal emulation was in effect at the time of the Upload. The Status line shows the Filename, the number of Bytes sent so far and the Percent completed.

[UP-ARROW] Scroll-back

As the on-line session proceeds, all displayed information is stored in a special scroll-back buffer. Pressing the [Up-Arrow] selects Scroll-back mode. While in this mode, you can scroll backward and forward through previously displayed text.

The size of the scroll-back buffer is defined in the [ALT][N][O][M][L] Setup menu.

Following is a sample scroll-back display:

```
WILDCAT! Copyright (c) 87, 91 Mustang Software, Inc. All Rights Reserved.
Registration Number 86-0001.  v3.02P. (PROFESSIONAL) Mode 8

Connected at 2400 bps.  ANSI detected.

■          You have connected to the MSI HQ BBS System

■  New phone numbers are available for registered and non-registered callers.
■  See Bulletin 6 for complete phone rotation, and numbers for all 15 lines.

                    ~~~~~~~~~~~~~~~~~~~~~~

SCROLL-BACK  ↑  PgUp        F1-Help  S-Save  C-Clear  ESC-Exit  Queue 0
```

As with other QMODEM 4.5 file prompts, you may override the default file name and press [ENTER] to save the file.

Pressing [C] clears the Scroll-back buffer and frees up the memory allocated to it.

The QUEUE at the far right of the scroll-back status line tracks the amount of incoming data while you are viewing Scroll-back information.

[CTRL][HOME] Capture to Disk

[CTRL][HOME] is a toggle which starts or stops the Session Capture facility. While Session Capture is active, the data displayed on the screen is also saved to a disk file.

When Session Capture is started, the following "Capture" file allocation window will be displayed:

```
 #    Baud     Name                    From                    Status
---  -------  ----------------------  ----------------------  ------------------
  1    2400   DENIS EVERETT                                   In a door
  2    2400   DONNIE PRESLEY          ft.wood,mo              Transfering a file
  3    2400   MELODY GAVIGAN          RENO, NV                Entering a message
  4    9600   MIKE MUNOA              FT WORTH TX
  5    OPEN   Waiting For Calls
  6    2400   CARL LOVERN             From Pine Bluff, Arkan  Transfering a file
  7   14400   SCOTT BURCH             Tehachapi Mountain      Entering a message
  8   14400   MARVIN MONROE
 10    9600   JAMES BROWN             Zeke @ (619) 755-5675   In a door
 21   19200   JIM HARRER              Mustang Software, Inc.  In a door
 31    2400   BOSTON LISTER           denton,md               Transfering a file
 32    2400   GENE BATE               dingo                   Transfering a file
 33   14400   Caller is logging in
 34    2400   GWEN BARNES             MSI Technical Sales
 51
                        Capture File Allocation
      > CAPTURE.CAP
Pre

Conf: "[0] - Private E-Mail ONLY", time on 6, with 980 remaining.
MAIN MENU: [M F C P R I O U V S U D N G W ? ! I E Z U T] ? [ ]
```

The file name may be changed by backspacing over the default name and typing a new one. If the capture file is new, you will be prompted for its creation. Pressing [ESC] will cancel the session capture request and return to the terminal screen.

Whenever session capture starts, a Status window will tell you that it has been started successfully. To end Session Capture, press [CTRL][HOME] again. The capture file will be closed and the Status window will be displayed telling you so.

CTRL END Sending a BREAK

Pressing CTRL END generates a BREAK signal. "BREAK" is a special signal generated by the serial adapter, used to notify the receiving computer of a specific condition. In most cases, BREAK is used to tell the other computer to interrupt whatever it is doing. For example, the GEnie On-line Service interprets the BREAK signal in the same manner as your PC would interpret CTRL C or CTRL Break.

In response to CTRL END, QMODEM 4.5 displays the following message:

<BREAK>

As is the case with PC programs which disable or ignore CTRL Break, the BREAK signal may not be recognized by the receiving computer. BREAK handling is a function of the communication software, and this feature may not be implemented in the computer you are communicating with.

SHIFT TAB Add Linefeeds

In some cases, text lines may be overwritten on the screen. The most likely reason is that the other computer is not sending Linefeed (LF) characters at the end of each line.

Pressing SHIFT Tab toggles the addition of a Linefeed (LF) character to each incoming Carriage Return (CR). To turn the Add Linefeed feature OFF, press SHIFT Tab again.

If text lines are double-spaced, Linefeeds are being added when they shouldn't. Press SHIFT Tab again to disable Linefeed addition.

When SHIFT Tab is pressed, a Status window will be displayed showing the new state of the toggle.

ALT 1 Backspace / DEL Toggle

ALT 1 toggles the value generated by the Backspace key between the standard backspace and the DEL character.

In normal operating mode, Backspace (BS) and CTRL H (^H) are treated in the same fashion and both generate a Backspace (ASCII 8) character. Certain terminals, such as the DEC VT100 require that a DEL character be sent (ASCII 127) when the backspace key is pressed.

When pressing ALT 1, a Status window will be displayed showing the new state of the toggle. The BS/DEL setting can be reversed on-the-fly by pressing CTRL Backspace. The current status of the BS/DEL toggle is displayed in the ALT N O T setup menu.

If the BS/DEL setting is incorrect, pressing the Backspace key will not yield the desired result on the receiving computer. If the toggle is active and the other computer expects a BS character, it will display the ASCII 127 instead (ASCII 127 on IBM PCs is displayed as a little house).

ALT 2 and ALT 4 EGA/VGA Modes

QMODEM 4.5 supports 2 alternate screen modes with EGA/VGA adapter. ALT 2 restores the standard 80x25 video mode for both EGA and VGA adapters. ALT 4 switches EGA systems to 80x43 mode and VGA systems to 80x50 mode. The screen will be cleared following each video mode change.

Some "SuperEGA" or "SuperVGA" adapters also support extended screen modes beyond the standard 80x25 display. These extended modes can be used if they are activated within QMODEM 4.5 with a FKey macro which invokes the adapters' setup utility with a @SHELL command.

Example:

The Video-7 VEGA VGA comes with a utility called ESU.COM used to switch video modes. To run this utility within QMODEM 4.5, assign the command "@SHELL ESU 43" to a QMODEM 4.5 function key via the ALT J command.

ALT 3 Debugging Screen

This is used by Tech Support at Mustang Software should you have a problem. The details of this window are beyond the scope of this manual. Suffice to say, it contains important information about your particular setup, and you can count on being asked about the contents should you call for help. This is one more reason you should be sitting in front of your computer, with QMODEM 4.5 running, when you call for help. It is usually a waste of your time and ours if you are not.

ALT 6 Batch Entry Window

This is the same BEW window as discussed back on page 139. Please refer back for a complete discussion.

ALT 8 Hi-Bit Stripping Toggle

Some computer systems use the high bit of each 8-bit character for parity checking, like CompuServe and GEnie. If the high bit is not removed, the screen display will consist of high-order ASCII characters (ASCII 127) such as foreign, graphic, or scientific characters.

ALT 8 toggles the stripping of the high-bit ON and OFF. When pressing ALT 8, a Status window will be displayed showing the new state of this toggle. QMODEM 4.5 starts in 8-bit mode by default. This can be changed with a Script command to automate high-bit stripping, for example when calling Compuserve.

The Status Line will display an "8" or "7" in the Toggles area to reflect the current mode.

Some BBSs use fancy graphics characters and ANSI escape codes. To display these properly, 8 bit mode must be in effect.

ALT 9 Copying to the Printer

The ALT 9 printer session toggle is similar to the DOS CTRL PrtSc command. If your system is equipped with a printer, pressing ALT 9 will replicate all screen displays on the system printer. To stop session printing, press ALT 9 again.

When pressing ALT 9, a Status window will be displayed showing the new state of the toggle. The printer should be READY when the ALT 9 command is issued. If the system is not equipped with a printer, or the printer is not ready (IE., powered off or offline), QMODEM 4.5 will display an "Abort ,Retry, Ignore or Fail" Error window. ALT 0 Log File Toggle

The ALT 0 command starts or stops QMODEM 4.5 Session Log recording. The session LOG feature is used to keep track of major QMODEM 4.5 activity. When the session log is active, QMODEM 4.5 writes an entry in the session log file reflecting information such as:

Who was called

The date and time of the call

How long the on-line session

Each log entry is time- and date-stamped.

ALT O is a toggle. If the Log File is closed, a filename prompt will be issued and the file will be opened. If the Log File is already opened, it will be closed.

Following is a sample Log File listing:

<screen>

Some Log entries may take up more than one line in the file. Any log entry which starts with "++" is a continuation of the previous one. For example, download or upload log entries are made up of several records in order to record all meaningful statistics.

Following is a complete list of all possible Log entries (the time and date stamps are not shown):

Key	Log entry
[user]	STAMP [stamp message from FKey or Script]
[auto]	On-line Timer Started.
[auto]	Elapsed On-line xx:xx:xx
[ALT][D]	Connected With : [Board Name]
	++ Phone Number : [Board Number]
	++ COM Speed : [Speed-Parity-Dbits-Sbits]
[ALT][H]	Hang-up Command entered.
[ALT][K]	COM Port [PortNumber] selected.
[ALT][J]	New KEY file [KeyFileName.
[ALT][L]	Default Drive now [DriveLetter]:
[ALT][O]	Directory changed to [DirectoryPath]
[ALT][R]	Dropping to DOS.
	++ Drop to DOS Failed.
[ALT][X]	Exiting QMODEM.
[ALT][Y]	File [Filename] DELETED.

[PgDn] Download File [Filename]

++ Protocol : ASCII

++ Protocol : Xmodem

++ Protocol : Xmodem CRC

++ Protocol : Xmodem Relaxed

++ Protocol : Xmodem-1K

++ Protocol : Xmodem-1K/G

++ Protocol : Ymodem

++ Protocol : Ymodem/G

++ Long block errors : [Number]

++ Short block errors : [Number]

++ SOH errors : [Number]

++ Complement errors : [Number]

++ Block number errors : [Number]

++ Time Out errors : [Number]

++ Resend Block errors : [Number]

++ Checksum errors : [Number]

++ Chars Per Second : [Number]

++ Effective Percent : [Number]

++ Download Aborted.

Download Executing [BatchFileName].

++ External Batch Failure.

[PgUp] Upload File [Filename]

++ Chars Per Second : [Number]

++ Effective Percent : [Number]

++ Upload Aborted.

++ Using Ymodem-G protocol.

++ Using Xmodem CRC protocol.

++ Using Xmodem protocol.

++ Using Ymodem protocol.

++ Using ASCII protocol.

++ Transfer Successful.

External Upload Batch [BatchFileName]

++ External Batch Failure.

[CTRL][END] BREAK signal sent.

Entries starting with "[user]" vary depending on the STAMP command used in FKeys and Script commands. Both will begin with the word "STAMP" followed by user-supplied text.

Entries starting with "[auto]" are recorded whenever QMODEM 4.5 changes from offline to on-line status and vice versa.

Remaining entries are related to the command listed in the left column.

Since Logging can be turned on automatically, you can now keep a perfect record of all your long distance calls. Many other important functions of operation can also be tracked with the Session Log feature.

[ALT][5] Host Mode

The Host mode is like a small BBS system. It allows others to call your system without a lot of hassles. The Host Mode features the following:

1. Open, Closed, and Callback operation to implement as little or as much security as needed.

2. Support of all internal and external file transfer protocols (except ASCII) for both uploads and downloads.
3. User-customizable menus. Default menus are provided and can be modified or replaced altogether to meet users' requirements.
4. Full-featured messaging system: Enter/Read/Reply/Kill messages, and Private messaging facility.
5. Shell to DOS from remote, with optional password protection.
6. Shutdown from remote, also with optional password protection.
7. Ability to call Scripts from the Host. New Host features can be implemented via standard QMODEM 4.5 scripts.
8. Sysop CHAT mode which allows callers to converse with the SYStem OPerator while on-line.
9. On-line listing of the HOST download file directory.
10. Complete online help for each menu option. These help files can be customized by you should you want.

Host Setup

Before it can be used, the QMODEM 4.5 Host Mode must be configured via the [ALT][N][H] Host Setup.

External Files Required

The Password File, QMHOST.PWD, is the only file required to run Host Mode. QMHOST.PWD contains users' Names, Passwords, Security Levels, and optional CallBack phone numbers. If QMHOST.PWD does not exist, it will be created automatically the first time Host Mode is started.

The file "QMHOST.PWD" is a CR/LF-delimited ASCII file. It can be edited with the Internal Editor or any standard text editor (IE. QEDIT, Norton Editor, or word processors which can edit unformatted ASCII files).

The QMHOST.PWD file layout is as follows:

```
Firstname Lastname Password Security-Level Callback-# ;Comments
```

Each field is separated by one or more spaces, and comments must be preceded by a semicolon. The Callback Number is required only if you have selected the CALLBACK system type. Information in the Password File is case-insensitive ("JANE", "Jane", and "jane" are interpreted identically).

Following is a sample QMHOST.PWD file:

```
John Friel      Password 1  1-319-233-6157; Moi

Joe Blow        Qmodem   0  ; another example
```

Records may be in any order (the SYSOP record need not be first). In the example above, the first and last entries have a CALLBACK number and will work in a CALLBACK system, while the second entry will not.

Security Levels may be "1" or "0". Level 1 users may shut down the system from remote (as long as they know the password). Other security levels are unassigned and are reserved for future use. Files created by the Host

Two files are created by the Host the first time it is invoked:

QMHOST.HDR	The Message Header file.
QMHOST.MSG	The Message Text File.

These two files may not be edited or modified in any way. If they are, unpredictable results will occur while messaging. The message base can be packed (killed messages are deleted) by running the QMHOSTPK.EXE program supplied on the Utilities disk. (Refer to the Message Section for more information on QMHOSTPK.EXE)

Optional Files Host Menu files can be customized to meet your needs. The following default menu files are supplied:

PRELOG.HST	The opening screen sent to all callers
MENU.HST	The Host Main Menu
PROTS.HST	The protocol list for Up/Download commands
LOGOFF.HST	The logoff screen sent to all callers

Menu Files are all standard ASCII files and can be edited with the Internal Editor.

Host Mode supports ANSI color/graphic menus, but these cannot be selectively disabled. If you use ANSI menus, all callers must have ANSI emulation active to correctly view the screens.

Included on the Utilities Disk, are sample menu files for you to experiment with. These files all end with the extension .HST .

Logging on Locally

While Host Mode is active, you may press [F1] to log on locally. This feature can be used to test menu and Script operation. All Host commands, except Page the Sysop are available locally. Attempting to do an Upload or Download will allow you to verify that the protocols are installed correctly, but no transfers will actually take place.

When you are finished, you should use the G command to log off.

To exit Host Mode, press [ESC] while the system is waiting for a call. You will be returned to TERMINAL mode and the Modem Initialization string ([ALT][N][M][M][I]) will be sent to the modem.

Starting the Host while ONLINE

The HOST can be invoked while you are on-line. The other person you are connected to will be prompted for logon information as if the host had answered the incoming call itself.

If the caller is unsuccessful in his logon, the host will drop the connection and cycle. There is no method to return to normal terminal without dropping the connection once the host is started.

Sysop Commands while the Host is active

When a caller is on-line, the SYSOP may break into chat mode by pressing [F2], Dropping to DOS locally by pressing [F5] or disconnect the caller by pressing [F10]. At all times, Host Mode will accept input from the remote caller as well as from the local keyboard. The SYSOP, for example, may come to the rescue of a caller by typing commands directly. These will be processed as if they had been typed by the remote caller.

Uploads and Downloads may be canceled by pressing [ESC] key. It is not considered nice to cancel a download on the 244th block of a 245-block file.

F2 Chatting with the Caller

Pressing F2 initiates an on-line chat between the caller and the sysop:

```
(60 min. left) Qmodem Host Command

You are now Chatting with the Sysop
```

(a conversation may go here...

```
Returning you to Host Mode
```

Both caller and Sysop may type at will; the display will be identical on both computers. End-of-Line wordwrap is also active in CHAT mode.

To exit CHAT mode, the SYSOP must press F2 again. The message "Returning you to Host Mode" will be displayed and the caller will be returned to the Main Menu.

F5 Dropping to DOS

When you drop to DOS, the caller will see the following message:

```
Sysop has dropped to DOS. Please wait...
```

You then get the DOS prompt just as if you had pressed ALT R from Terminal Mode. When you type EXIT and return to the Host, the caller will see:

```
Ok, you can continue...
```

and the main menu will be displayed.

F10 Disconnecting the Caller

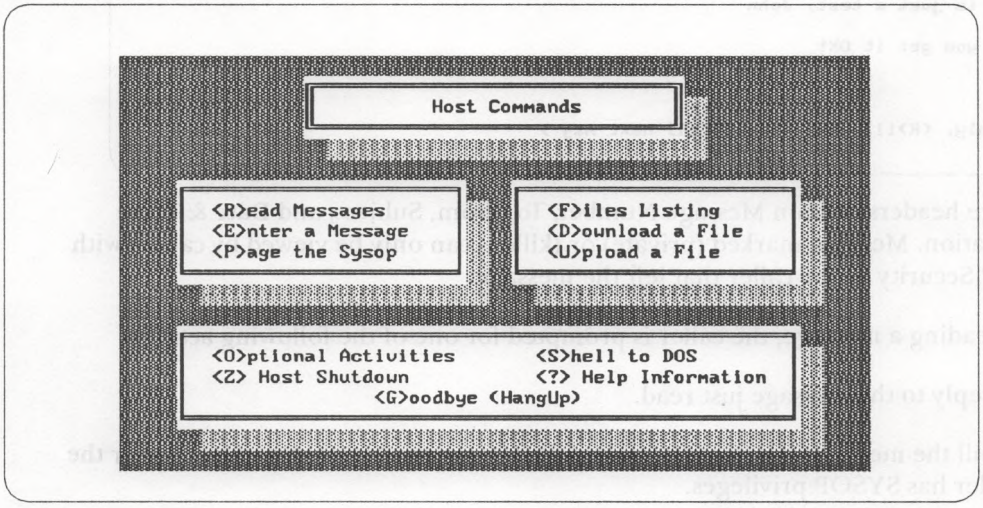
This is a drastic measure, but one you should know how to use. If your system is suddenly beseiged by a gang of Adolescent Deformed Kung-fu Crickets with modems, you will want to be sure they get the message... Pressing F10 gives them:

```
NO CARRIER
```

That's right, nothing. The modem is hung up without a message.

Host Functions

Here is a sample MENU.HST file bundled with QMODEM 4.5 :



Now let's look at each command in the Host:

R READ MESSAGES

The "R" Read command is used to read messages. Unlike sophisticated On-line Services or Bulletin Board Systems, the QMODEM 4.5 Host mode does not keep track of each caller's "Last Message Read". It is up to callers to remember the number of the last message he/she read.

If the caller presses ENTER at the "Start with Msg" prompt, the READ command is canceled and the Main Menu is displayed.

If the number entered is lower than the number of the first available message, reading will start with the first available message. Likewise, if the number entered is higher than the highest message number, the last valid message will be read.

Following is a sample message-reading session:

```
      Msg# : 1
        To : JOHN FRIEL (private) (not read)
      From : GWEN BARNES
   Subject : TESTING THE HOST
 Date/Time : 02-02-92 15:34:01
-----------------------------------------
This is just a test, John

Hope you get it OK!

Gwen

(R)eply, (K)ill, (Q)uit, [ENTER] next msg >
```

Message headers contain Message Number, To, From, Subject, and Date & Time information. Message marked (private) or (killed) can only be viewed by callers with SYSOP Security or the caller that left the message.

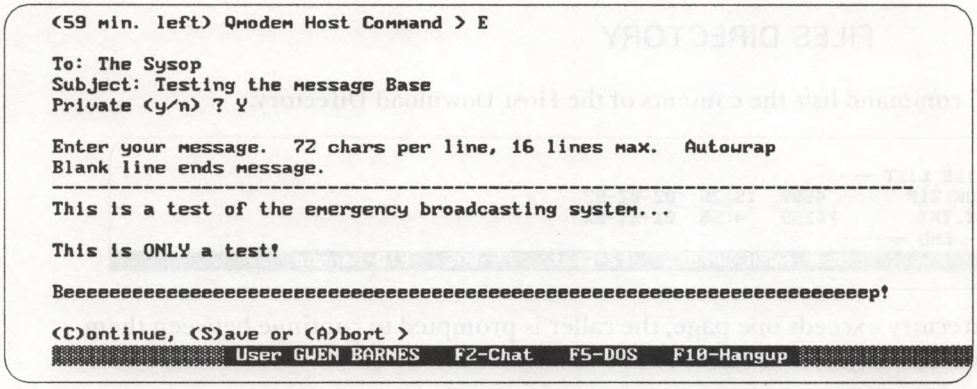
After reading a message, the caller is prompted for one of the following actions:

1. (R)eply to the message just read.
2. (K)ill the message. A message can be killed if it was addressed to the caller or the caller has SYSOP privileges.
3. (Q)uit and return to the Main Menu.
4. ENTER to read the next message.

E ENTER A MESSAGE

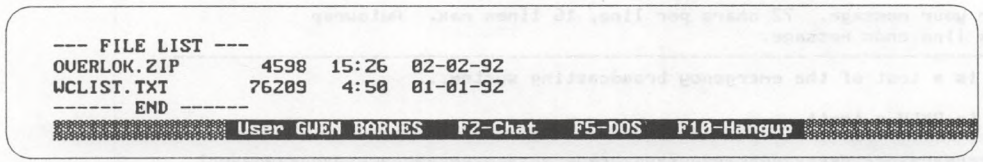
The "E" command is used to enter a new message. The caller will be prompted for the name of the recipient, an appropriate subject for the message, and the security status of the message (private or public). The actual message is then entered. Messages may have up to 20 lines of 72 characters each. As text reaches the end of the line, it automatically wraps to the next line.

Following is a sample message entry session:


(59 min. left) Qmodem Host Command > E
To: The Sysop
Subject: Testing the message Base
Private (y/n) ? Y
Enter your message. 72 chars per line, 16 lines max. Autowrap
Blank line ends message.
This is a test of the emergency broadcasting system...
This is ONLY a test!
Beeee

F FILES DIRECTORY

The "F" command lists the contents of the Host Download Directory:



If the directory exceeds one page, the caller is prompted to continue between them. These are the only files that can be downloaded from the Host.

Exception to Rule :

IF the caller has Sysop privileges, AND the [ALT][N][H][D] Download Directory is left BLANK, the caller can then Download ANY file from the Host system provided he/she knows the EXACT drive:\path\filename. The Files command does not prompt for the directory to display. It will always show the CURRENT directory under these conditions.

It is assumed that in this case, the caller has his/her Host set up securely.

D DOWNLOAD FILES

When D is selected, the alternate Protocol directory file PROTS.HST is searched for and displayed. If this file is not found, then the default list of protocols is displayed. Download procedures are the same as uploads. Prior to a download, the Host verifies the existence of the file to be sent. If the file does not exist, the Download is canceled.

The Host fully supports the Batch transfer protocols. If a batch protocol is selected, the user is prompted for up to 20 filenames to be downloaded. Each filename can also contain the wildcard characters * and ?. This allows for even greater flexibility!

U UPLOAD FILES

When the Upload command is selected, the Host first looks for the alternate protocol menu file PROTS.HST. If it is found, it is displayed. If not, the list of default protocols is displayed. The caller can then select the desired protocol. A filename prompt will be displayed next for the file transfer. During the transfer, the standard QMODEM 4.5 Download window will be displayed.

The meanings of Uploads and Downloads are reversed while in Host Mode — an Upload by the caller is a Download to the Host, and vice-versa —.

O OPEN A SCRIPT

The Open Script command allows QMODEM 4.5 script execution while in Host Mode; it is the Host equivalent of the [ALT][F] command. When the "O" command is selected, the QMHOST.SCR script is executed.

When logging on locally with the [F1] command, the "O" command invokes the QMHOSTL.SCR script rather than the QMHOST.SCR script. This allows you to test the script offline. Since QMHOSTL.SCR script is executed while offline, it should not test for an on-line condition.

If the Host script is found, it begins executing immediately. If the Script is not found, the following message is displayed:

```
Sorry, that function is not available.
```

Following is a sample QMHOST.SCR:

```
FirstNamePrompt: DISPLAY "Enter your First Name " ; ask for a
first name
GETR 0 20              ; put it in $0
IF $Offline Exit1      ; if we are offline, then exit
IF "$0" " " LastNamePrompt       ; If so, go to the next prompt.
DISPLAYLN "Hey, I want your Last name! Try again...^M^J"
GOTO FirstNamePrompt
LastNamePrompt: DISPLAY "Enter your Last name " ; ask for a
last name
GETR 1 20              ; put it in $1
IF $Offline Exit1      ; are we offline? if so, exit
IF "$1" " " NextStep ; if a name was entered, go to next label
DISPLAYLN "Hey, I want your Last name! Try again...^M^J"
GOTO LastNamePrompt
NextStep:              ; continue here
DISPLAYLN " "
DISPLAYLN "Thank you, $0"
DISPLAYLN "You will now be returned to the Host...
DISPLAYLN " "
DISPLAYLN "Please wait $0 $1"
Exit1:
EXIT      ; exit back to the Host
```

The QMHOSTL.SCR version of the script would be modified so that the GETR commands would be changed to GET, and the $OFFLINE tests would be removed completely.

The callers First and Last name is passed to the script variables $0 and $1 respectively. For more information on QMODEM 4.5 Scripts, refer to the Script Language section later in this manual.

S SHELL TO DOS

The "S" Shell to DOS command allows access to the DOS prompt while Host Mode is active. This command is the Host equivalent of the [ALT][R] command, and similar rules and restrictions apply. There is, however, one major difference between the local DOS Shell available with the [ALT][R] command, and the Host Shell. In the case of a remote logon, DOS must receive its input from the serial port, rather than from the keyboard. If there is a user on-line, the Host Shell command executes the QMHOST.BAT batch file. If you are logging on as the local Sysop, the Shell command operates in the same manner as the [ALT][R] command.

The Host passes 4 parameters to the QMHOST.BAT file as follows:

%1	The current COM port number
%2	The current Baud rate
%3	The current Port Base Address (in HEX)
%4	The IRQ for the current port (in HEX)

Refer to the README file located on Disk 1 for further instructions on the QMHOST.BAT file.

The default QMHOST.BAT file can be set up use the DOS CTTY function to do the remote Drop to DOS functions. This is not as clean a solution as running Doorway, but it does work in a pinch. The file would then contains the following lines:

```
ECHO OFF
CTTY COM%1:
COMMAND
CTTY CON:
```

There is one limitation to the CTTY method you should be made aware of. DOS CTTY only supports COM1 and COM2. If you need to use COM3 - COM8, you need to look at the DOORWAY program described on page 163.

G GOODBYE (HANG-UP)

The Goodbye command allows a clean exit from the Host mode. The modem is put back on-hook and returns to "Waiting for call...".

? HELP WITH HOST

The ? command will cause the Host to search for the file called HELP.HST and display it if found. This is a generic Help file that should tell the caller what all the commands are and briefly what they do. It should also mention that more help is available by typing in a ? followed by the command in question. This will display a file by the name of HELP[character].HST where [character] is the command letter they want more help with.

These help files are ASCII text and can be edited by you to customize your Host. A default set of help files is included on the Utilities Disk.

HELP.HST Generic

Help about the Host and should include a brief command summary.

HELPD.HST Download command.

You should edit to include specific instructions on external protocols if any are installed.

HELPE.HST Enter Message command.

Instructions on entering a message.

HELPF.HST File List command.

Tells the caller about your downloadable files.

HELPG.HST Goodbye command.

Need I say more?

HELPO.HST Open Script command.

This should describe any script systems you install.

HELPP.HST Page Sysop command.

You might want to tell them the hours you are around for being paged. If you are never around, you might want to tell them to always leave a message.

HELPR.HST Read Message command.

Instructions on reading messages.

HELPS.HST Shell to DOS command.

Most likely, you will not be allowing your callers to do this. On the outside chance someone will, this is the help for them.

HELPU.HST Upload command.

You might want to tell them about the protocols you have installed. Similar to the Download help file.

HELPZ.HST Shutdown Host command.

Again, your users should not be doing this, but you never know!

Z SHUT DOWN HOST

The Shutdown command can only be entered by users that have a security level of 1. In addition, they must also know the shutdown password (ALT N H S). When the correct password is entered, the Host hangs up and returns to Terminal mode in QMODEM 4.5.

The "Z" does not appear in the default menu for security reasons. Out of sight, out of mind.

Packing the Message Base

There is a program called QMHOSTPK.EXE included on the Utilities Disk that will pack the Message base. The term PACK refers to removing 'killed' messages.

You execute QMHOSTPK from the DOS prompt. It assumes the message base files QMHOST.MSG and QMHOST.HDR are in the current directory.

Should the message base become corrupted, the files QMHOST.HDR and QMHOST.MSG files should be deleted and let the host re-create them.

[ALT][MINUS] Status Line Toggle

The [ALT][Minus] command toggles ON and OFF the Status Line at the bottom of the screen. This is for normal Terminal mode only. When running the Host Mode, a Script, or most other Alt commands, the appropriate status line(s) will be displayed.

When turned OFF, it does give you one additional line for use in some terminal emulations, and especially useful when using the Doorway mode ([ALT][Equal]).

[ALT][EQUAL] DOORWAY Mode

Doorway mode allows you to send the entire PC Keyboard Scan Codes across the line to the remote system. The exception to this is the [ALT][Equal] key, which is the toggle to get you in and out of Doorway mode.

This is most often used with fullscreen message editors on Bulletin Board systems, to allow use of the arrow, page up and page down keys.

[ALT][ENTER] Alternate Status Line Toggle

A little feature that a lot of you requested. The status line can now be toggled between the QMODEM 4.5 standard with all the toggles and system information, to one that shows you the Name and Number of the last dialed system. Yes, it will show you who you are connected to!

The only restriction is that the number must have been dialed from the dialing directory, [ALT][D].

[ALT][N][O][R][I] Int16 Enable must be set ON for this to function and your BIOS and keyboard must support a 101-key system. Old PC's and some old XT's may not allow this to work.

Chapter 5
The Editor

"I look upon every day to be lost, in which I do not make a new acquaintance"

Samuel Johnson

In this Chapter...

- An introduction to the editor
  Entering text in various Qmodem operation
- Basic operation
  Status line, cursor movement commands

THE INTERNAL EDITOR

The Internal Editor is a RAM-based editor and similar to the Turbo Pascal & SideKick editors. If you are familiar with either of these, you should need little help in using the Internal Editor (perhaps no more than a look at the Quick Command Reference); novices should read on.

Entering and Editing Text

You enter text into the Internal Editor the same way you would on a regular typewriter. Most keys behave in the same manner; pressing [ENTER] terminates a text line, for example. But there are some important differences too.

The cursor always indicates where new text will be entered, and you can move the cursor in a number of ways. You can correct mistakes easily using the Delete commands. You can copy or move blocks of text with the Block commands. You can quickly search the file for a particular text string with the Find commands. And, most of the time, you can "undo" a change with the Line Restore command.

Each command (and there are many more) is described briefly in the following section.

QUICK REFERENCE

Function	Keystroke(s)
Character left	[CTRL] [S] or [LeftArrow]
Character right	[CTRL] [D] or [RightArrow]
Word left	[CTRL] [A] or [CTRL] [LeftArrow]
Word right	[CTRL] [F] or [CTRL] [RightArrow]
Line up	[CTRL] [E] or [UpArrow]
Line down	[CTRL] [X] or [DownArrow]
Scroll up	[CTRL] [W]
Scroll down	[CTRL] [Z]
Page up	[CTRL] [R] or [PgUp]
Page down	[CTRL] [C] or [PgDn]
Beginning of file	[CTRL] [Q] [R] or [CTRL] [PgUp]
End of file	[CTRL] [Q] [C] or [CTRL] [PgDn]
Beginning of line	[CTRL] [Q] [S] or [Home]
End of line	[CTRL] [Q] [D] or [End]
Top of screen	[CTRL] [Q] [E] or [CTRL] [Home]

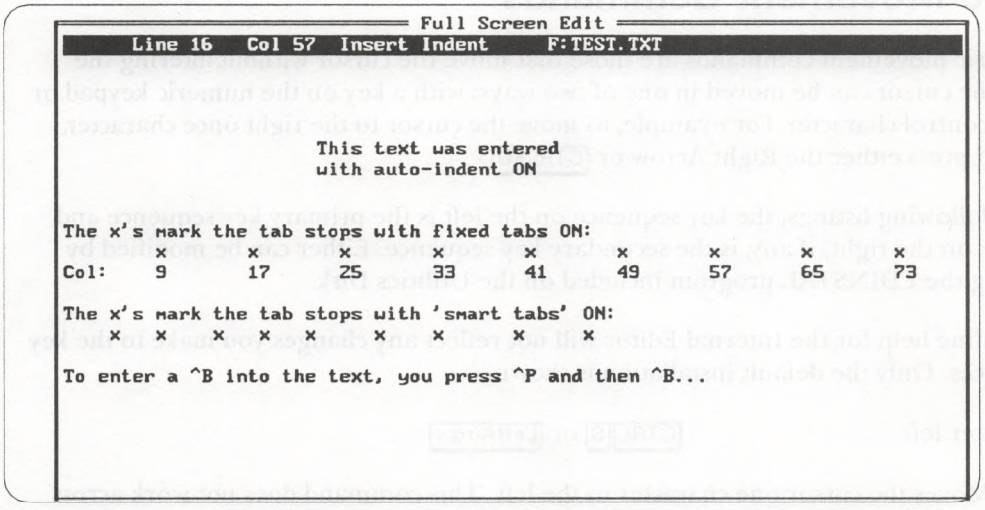
Bottom of screen	CTRL Q X or CTRL End
Top of block	CTRL Q B
Bottom of block	CTRL Q K
Jump to marker 0..3	CTRL Q 0 .. CTRL Q 3
Set marker 0..3	CTRL K 0 .. CTRL K 3
Previous cursor position	CTRL Q P
New line	CTRL M or ENTER
Insert line	CTRL N
Insert control character	CTRL P
Tab	CTRL I or Tab
Delete current character	CTRL G or Del
Delete character left	CTRL H or Backspace
Delete word	CTRL T
Delete to end of line	CTRL Q Y
Delete line	CTRL Y
Find	CTRL Q F
Find-and-replace	CTRL Q A
Find next	CTRL L
Begin block	CTRL K B or F7
End block	CTRL K K or F8
Copy block	CTRL K C
Move block	CTRL K V
Delete block	CTRL K Y
Hide block	CTRL K H
Mark current word as block	CTRL K T
Read block from file	CTRL K R
Write block to file	CTRL K W
Print block	CTRL K P
Toggle insert mode	CTRL V or Ins
Toggle Autoindent mode	CTRL Q I
Toggle fixed tabs	CTRL O T
Restore line	CTRL Q L
Exit editor	CTRL K D or F10 or Esc

When the notation Ctrl- precedes another key, it means that you hold down the Ctrl key and press the second key. In the case of commands that have a second letter (for example CTRL Q P), you hold down the Ctrl only while pressing the first letter, not the second.

The Editing Screen

The top line in the Edit Window is called the Edit Status Line and should not be confused with the global Status Line at the bottom of the screen. The Edit Status Line is inside the window and the global is not.

The editor screen:


Full Screen Edit
Line 16 Col 57 Insert Indent F:TEST.TXT
This text was entered
with auto-indent ON
The x's mark the tab stops with fixed tabs ON:
x x x x x x x x x
Col: 9 17 25 33 41 49 57 65 73
The x's mark the tab stops with 'smart tabs' ON:
x x x x x x x x x
To enter a ^B into the text, you press ^P and then ^B...

Command echo

When the first key of a command assigned to two keystrokes is pressed, or when the Insert control character command (CTRL P, like the example) is given, the keystroke is echoed in the upper left corner of the window on the status line. For example, if you start to enter a command that begins with CTRL K (such as CTRL K K), a ^K will appear until the second keystroke is entered.

Line n	Shows the number of the line containing the cursor, counted from the start of the file.
Col n	Shows the column number containing the cursor.
Insert	Indicates that Insert mode is in effect. Everything you type will be inserted as opposed to possibly overwriting existing text.
Indent	Indicates that Autoindent mode is in effect. CTRL Q I toggles autoindent on and off.

Tab — Indicates that fixed tabs (toggled with CTRL O T) are in effect.

E:TEST.TXT — The Drive, name and extension of the file being edited. Although the editor accepts path designations, the path name will not appear in the status line.

Basic Movement Commands

The basic movement commands are those that move the cursor without altering the text. The cursor can be moved in one of two ways; with a key on the numeric keypad or with a control character. For example, to move the cursor to the right once character, you can press either the Right Arrow or CTRL D.

In the following listings, the key sequence on the left is the primary key sequence and the one on the right, if any, is the secondary key sequence. Either can be modified by running the EDINSTAL program included on the Utilities Disk.

The online help for the Internal Editor will not reflect any changes you make to the key sequences. Only the default installation is shown.

Character left — CTRL S or LeftArrow

Moves the cursor one character to the left. This command does not work across line breaks; when the cursor reaches column 1; it stops.

Character right — CTRL D or RightArrow

Moves the cursor one character to the right. This command does not work across line breaks; when the cursor reaches the right-hand edge of the text window, the text starts scrolling horizontally until it reaches the extreme right edge of the line (column 248), where it stops.

Word left — CTRL A or CTRL LeftArrow

Moves the cursor to the beginning of the word to the left. This command works across line breaks.

Word right — CTRL F or CTRL RightArrow

Moves the cursor to the beginning of the word to the right. This command works across line breaks.

Line up — CTRL E or UpArrow

Moves the cursor to the line above. If the cursor is on the top line of the window, the window scrolls down one line.

Line down — CTRL X or DownArrow

Moves the cursor to the line below. If the cursor is on the next-to-last line of the window, the window scrolls up one line.

Scroll up — CTRL W

Scrolls up toward the beginning of the file, one line at a time. The cursor remains on its line until it reaches the bottom of the window.

Scroll down — CTRL Z

Scrolls down towards the end of the file, one line at a time. The cursor remains on its line until it reaches the top of the window.

Page up — CTRL R or PgUp

Moves the cursor one page up with an overlap of one line.

Page down — CTRL C or PgDn

Moves the cursor one page down with an overlap of one line.

Beginning of file — CTRL Q R or CTRL PgUp

Moves the cursor to the first character in the file.

End of file — CTRL Q C or CTRL PgDn

Moves the cursor to the last character in the file.

Beginning of line — CTRL Q S or Home

Moves the cursor to column 1 on the current line.

End of line — CTRL Q D or End

Moves the cursor to the end of the current line (the position following the last non-blank character on the line). Trailing blanks are always removed from all lines to preserve space.

Top of screen — CTRL Q E or CTRL Home

Moves the cursor to the top line of the text window.

Bottom of screen — CTRL Q X or CTRL End

Moves the cursor to the bottom line of the text window.

Top of block — CTRL Q B

Moves the cursor to the position of the block-begin marker set with CTRL K B. This command works even if the block is hidden with the CTRL K H command or the block-end marker is not set.

Bottom of block — CTRL Q K

Moves the cursor to the position of the block-end marker set with the CTRL Q K command. The command works even if the block is hidden or the block-begin marker is not set.

Previous cursor position — CTRL Q P

Moves the cursor to the last position. This command is useful to move back to the previous position after a Save, a Find, or a Find-and-replace operation. (or in case you hit the wrong direction key!)

Jump to marker 0..3 — CTRL Q 0 .. CTRL Q 3

Moves the cursor to one of the four invisible text markers created with the Set marker command. CTRL Q 0 jumps to marker 0, CTRL Q 1 jumps to marker 1, and so on. If the specified marker has not been set, the cursor is not moved.

Set marker 0..3 — CTRL K 0..CTRL K 3

Sets one of the four invisible text markers at the current cursor position. CTRL K 0 sets marker 0, CTRL K 1 sets marker 1, and so on.

Insert and Delete Commands

These commands let you insert and delete characters, words, and lines. Two related commands are covered in later sections: Restore line (CTRL Q L) and Delete block (CTRL K Y).

New line CTRL M or ENTER

In insert mode, this command inserts a line break at the cursor's current position. If Autoindent mode is in effect, the cursor moves to the next line and to the same column as the first non-blank character in the previous line; otherwise, it moves to column 1 of the new line.

In overwrite mode, this command moves the cursor to column 1 of the next line without inserting a new line, whether Autoindent mode is in effect or not.

Insert line CTRL N

Inserts a line break at the cursor's position. The cursor does not move.

Insert control character CTRL P

Allows control characters to be entered into the text. For example, pressing CTRL P and then CTRL C would insert a CTRL C (^C) into the text. Control characters are displayed as capital letters in the same color as the Status Line.

Tab CTRL I or Tab

Moves the cursor to the next tab stop. In Insert mode, any text to the right of the cursor is moved along with it; in Overtype mode, only the cursor is moved. The location of the next tab stop depends on whether fixed tabs or smart tabs are in effect.

Delete current character CTRL G or Del

Deletes the character over the cursor and moves any characters to the right of the cursor one position to the left. This command does not work across line breaks.

Delete character left CTRL H or Backspace

Moves the cursor one character to the left and deletes the character positioned there. Any characters to the right of the cursor are moved one position to the left. If the cursor is in column 1 at the time the command is given, the invisible end-of-line marker for the previous line is deleted instead, and the two lines are joined.

Delete word CTRL T

Deletes the word to the right of the cursor. This command works across line breaks and thus may be used to remove line breaks.

Delete to end of line CTRL Q Y

Deletes all text from the position of the cursor to the end of the line.

Delete line CTRL Y

Deletes the line containing the cursor and moves any lines below it up one line. The cursor moves to column 1 of the next line. You cannot restore a deleted line, so use this with caution.

Block Commands

A block is any arbitrarily defined, contiguous unit of text; a block can be as small as a single character or as large as the entire file. Mark a block by placing a begin-block marker at the first character in the desired block and an end-block marker just beyond the last character. Once marked, the block can be copied, moved, deleted, or written to a file.

Although marked blocks are normally highlighted, the block may be "hidden" (or made invisible) with the Hide block command. Many of the block-manipulation commands described here work only when the block is being displayed. The block- related cursor movement commands (CTRL Q B and CTRL Q K described in the "Basic Movement Commands") work whether the block is hidden or displayed.

Begin block CTRL K B or F7

Marks the beginning of a block. The marker itself is not visible on the screen, and the block becomes visible only when the end-block marker is set. You can also use the begin-block marker as an extra text marker and jump directly to it with CTRL Q B.

End block CTRL K K or F8

Marks the end of a block. Like the begin-block marker, the end-block marker is invisible, and the block itself will not be displayed unless both markers are set. You can also use the end-block marker as an extra text marker and jump directly to it with CTRL Q K.

Copy block CTRL K C

Creates a copy of a marked and displayed block at the current cursor position. The original block is left unchanged, and the markers are placed around the new copy of the block.

Move block CTRL K V

Moves a marked and displayed block from its current position to the cursor's position. The markers remain around the block at its new position.

Delete block CTRL K Y

Deletes a marked and displayed block. There is no command to restore a deleted block, so use caution with this command.

Hide block CTRL K H

Toggles on and off the visual marking of a block. Block manipulation commands work only when the block is being displayed.

Mark single word CTRL K T

Marks a single word as a block, combining the functions of the Begin-block and End-block commands. If the cursor is positioned within a word, that word will be marked. If it is not within a word, then the word to the left of the cursor will be marked. And if there is no word to the right of the cursor, then the word to the left will be marked.

Read block from file CTRL K R

Reads a file into the text at the cursor's current position exactly as if it were copied from another part of the text. The file read in is marked as a block. When you use this command, you are prompted for the name of the file to read. If you have used this command earlier in the editing session, the last file name entered will be displayed. You may enter a new file name, make minor changes to the one displayed using the Backspace key, or accept it by pressing ENTER. The file specified may be any legal file name, including a drive and/or path identifier. Cancel the command by pressing CTRL U.

Write block to file CTRL K W

Writes the currently marked block to a file. The block is left unchanged, and the block markers remain in place. You are first prompted for a filename. The file specified can be any legal file name, including a drive and/or path identifier. You should avoid using file names with the extension .BAK, because this extension is used by the Internal Editor when creating backup files. If the file specified already exists, you are asked if you want to overwrite it. If you press "N" (for NO), you can enter a new file name, make minor changes, or cancel the command with the CTRL U command. If no block is marked, this command is ignored.

Print CTRL K P

Prints the currently marked and displayed block on the default printer. If no block is marked or the block is hidden, the entire file is printed.

Miscellaneous Commands

This section describes a number of commands that do not fall into any previous category.

Toggle insert mode CTRL V or Ins

Selects Insert or Overwrite mode. In Insert mode, text to the right of the cursor is moved to the right as new text is entered. In Overwrite mode, any text to the right of the cursor is overwritten when new text is entered.

Toggle autoindent CTRL Q I

When Autoindent mode is in effect, the New line command (ENTER or CTRL M) will move the cursor to the next row and to the same column as the first non-blank character on the previous line.

Toggle fixed tabs CTRL O T

When fixed tabs are in effect, the tab stops (normally) start at column 9 and occur every 8 columns thereafter. By default, fixed tabs are off, and smart tabs are on. When smart tabs are in use, the tab stops are determined by the locations of the words on the previous line; the first character in each word represents a tab stop. When fixed tabs are used, the Tab command inserts a single tab character at the cursor's position. When smart tabs are used, the tab is stored as a series of blanks.

Restore line CTRL Q L

Undoes any changes made to a line of text as long as you have not left the line. The line is restored to its previous contents regardless of the changes made. Since the Delete line command (CTRL Y) moves the cursor to what was previously another line, Restore line cannot recover lines deleted with it.

Find CTRL Q F

Lets you search for a string of up to 30 characters. When you enter this command, the status line is cleared and you will be asked for a search string. The

last search string entered (if any) will be displayed. You can select it again by pressing [ENTER], edit it, or enter a new string. When editing strings, Backspace deletes the previous character, [CTRL][R] restores the previous string, [CTRL][S] moves the cursor to the left, and [CTRL][D] shows the next character to the right. Esc or [CTRL][U] will cancel a search command, and [CTRL][P] can be used to enter control characters.

After the search string is entered, you must specify your search options. The options you used last, if any, are displayed. Editing works the same as the search string edit. The following options are available:

B — Searches backwards from the current cursor position toward the beginning of the file.

L — Limits searches to the currently marked block.

nn — may be any number. Find the nth occurrence of the search string, counted from the current cursor position.

U — Ignore case; treats all alphabetic characters as if they were uppercase.

W — Searches for whole words only; skips matching patterns embedded in other words.

If the text contains a target matching the search string, the cursor is positioned at the end of the target.

Find and replace [CTRL][Q][A]

This operation works the same as the Find command, except that you can replace the "found" string with any other string of up to 30 characters. After entering the search string, you are asked to enter the replacement string. The last replacement string, if any, will be displayed; you can accept it, edit it, or enter a new string.

Finally, you are prompted for options. The options you used last are displayed at first. You can enter new options (canceling the old ones), edit the current options, or select the same options by pressing [ENTER]. The options are the same as those for the Find command with the following exceptions:

G — Searches globally. The entire file is scanned for the search string, regardless of the current position of the cursor. The search starts at the beginning of the file if searching forward; at the end if searching backwards.

N Replaces without asking. Does not prompt for confirmation at each occurrence of the search string.

If the text contains a target matching the search string, the cursor is positioned at the end of the target. You are then asked if you wish to replace it. Press "Y" to replace it, or "N" to ignore it. You can abort the operation by pressing CTRL U. If you selected the N (no prompting) option, this question will not be asked.

You can speed up global search-and-replace operations by selecting the N option and then pressing a key (preferably for a nonprinting character, such as ESC or Ins). The screen is then no longer updated when each replacement is made.

Find next CTRL L

Repeats the last search operation. If the last search command called for a Find operation, the same search string and options will be repeated; for a Find-and-replace operation, the replacement string will be reused as well.

Exit Editor CTRL K D

Saves the file being edited and exits from the editor. The original file, if any, is renamed to FILENAME.BAK.

EDINSTAL - Keyboard Installation Program

You can use the EDINSTAL program (on the Utilities Disk) to customize the Internal Editor. You can redefine the keystrokes (both primary and secondary) used to invoke the predefined commands. For example, the Toggle fixed tabs command is by default assigned to CTRL O T using EDINSTAL, you could assign this command to Shift-Tab.

Running EDINSTAL

Load EDINSTAL by typing EDINSTAL at the DOS command line. The QMODEM.EXE file must be in the current directory for this to run. If it is, you will be asked

```
Perform fast entry for fully reconfigured keyboard?
```

If you press "Y" for yes, you can install the keyboard using the fast-entry method. The default response, No, can be given by pressing "N" or ENTER. If you answer No, the keyboard will be installed using the random access method.

Fast Entry

When you select the fast-entry option, you will see the following instructions:

```
Press <enter> to accept default

Press keys followed by <enter> for new key sequence

Press <Bksp> to back up one keystroke, C to clear, R to restore
Press <Scroll Lock> to toggle literal mode

Press <Escape> to quit entering commands

Random access editing is available when you are finished
```

You can then either enter a new key sequence for each command or accept the current one by pressing [ENTER]. Both the command name and the current key sequence are always displayed to the left of the cursor. You specify a new key sequence by pressing the keys you wish to use to invoke that command. Pressing [ENTER] terminates your entry.

You can correct mistakes in the current entry by pressing the Backspace key (delete last keystroke), C (Clear entry), or R (Restore previous entry). To specify either the [ENTER] key or a [CTRL][M], you must first press the Scroll Lock key, which indicates that keystrokes are to be interpreted literally; press it again when you've finished entering the key sequence. Pressing Esc stops the fast-entry procedure and takes you to the random access entry screen.

Random Access

When you select the random access option or when you have finished using the fast-entry procedure, you can alter any or all of the default key sequences. The top line of the screen will give you some basic instructions. The remainder of the screen shows (from left to right) the name of the command, the primary key sequence, and the secondary key sequence (if any).

Move the cursor to the key sequence you want to change and press [ENTER]. Use the Left arrow and Right arrow keys to select the primary or secondary key sequences, and scroll through the list of commands using the Up arrow, Down arrow, PgUp, and PgDn keys. Home takes you to the first command, and End to the last.

You can correct mistakes the same way as the fast-entry edit.

Quitting the Program

When you have finished making changes, press "Q" to quit or "W" to write your changes to the QMODEM.EXE file. If you choose the Write option, you will then see the message "Checking for conflicts..." If you have accidentally assigned the same key sequence to two different commands, an error message will be displayed. You can correct your mistakes by searching for the highlighted items.

You will also see an error message if the new list of keystrokes is too large for the area set aside for it. You can easily solve this problem by eliminating a few secondary key sequences.

Chapter 6

Qmodem Script Language

"Opinion is ultimately determined by the feelings, and not by the intellect"

Herbert Spencer

In this Chapter...

- What is a script?
  And what can I do with it?
- Input/output and variables
  How to pass arguments to scripts
- Script command language
  Keywords and operation explained

THE QMODEM 4.5 SCRIPT LANGUAGE

What is a script? A script is a QMODEM 4.5 program, designed to perform specific and/or repetitive functions much faster and more reliably than with manual methods. Scripts can be used to do just about anything that can be done at the keyboard; your imagination is the only limit. Common uses for scripts include:

1. Automated logon
2. File transfers
3. Completely automated sessions
4. Unattended QMODEM 4.5 operations

The QuickLearn Script Recorder is an extremely convenient facility, but it has its limitations. Basically, QuickLearn can only record your interactions with a remote computer and replicate them exactly. It cannot add decision-making logic to the scripts it creates, or account for unexpected or changing conditions. When you run out of QuickLearn power, time has come to write or edit your own scripts.

Scripts are similar to interpreted BASIC programs. The syntax is somewhat different, but the principles are almost identical. The QMODEM 4.5 Script Interpreter (also referred to as the Script Parser) reads the script's code and executes the instructions as it reads them.

Scripts can be very simple or extremely involved. Logon scripts created by QuickLearn are simple. Some large and complex scripts have also been written to turn QMODEM 4.5 into a mini-Bulletin Board System. With the advent of BBS Networks such as ILink, scripts have been written to automatically dial a BBS, log on, open a mail transfer door, download a mail packet, and log off. Many useful QMODEM 4.5 scripts are included on the QMODEM 4.5 Utilities disk. Many other scripts can be found on bulletin boards, including Mustang Software HQ!, Home of QMODEM.

You need not be a programmer to write scripts, but if you aren't, we recommend that you start at the beginning until you have a good understanding of script concepts, syntax rules, and common script commands.

As with all programming languages, The QMODEM 4.5 script language has a few idiosyncracies. Here are some of the most obvious.

Physical vs. Logical Screen

The physical screen is the entire screen, which usually consists of 80 columns and 25 lines (or more if you have an EGA or VGA and use one of the extended display modes).

Smaller, logical screens can be defined with the script BOX or WINDOW commands. All screen output commands except ATWRITE are limited to the logical screen boundaries defined in the last BOX or WINDOW commands.

Input and Output Commands

The script language has a wealth of input and output commands, each with a specific purpose. For example, there are six commands available to read input from the keyboard and/or COM port (GET, GETN, GETR, GETNR, GETX, and INKEY), and seven commands available to display data on the screen and/or send it to the COM port (ATWRITE, SEND, DISPLAY, DISPLAYLN, NOTE, WRITE, and WRITELN). In addition, the WHEN command can also be used to send data to the COM port when specific COM input is received.

Variable Handling Variables used in scripts do not have explicitly declared types such as INTEGER or STRING. The string "100", for example, could be used as a numeric variable as well as a text variable. It is your responsibility to insure that the variable contents are numeric when they need to be.

When a variable name is prefixed with a dollar sign, the Script Interpreter will automatically substitute its value in the command. When a value is assigned to a string, the dollar sign is omitted. It is important to understand this concept to put it to good use.

Regardless of their contents, script variables cannot exceed 64 characters.

Running Scripts

Scripts may be invoked explicitly with the [ALT][F] command. They may also be run automatically by specifying a script name on the QMODEM 4.5 command line, or if the script name is defined in a directory entry (Linked Scripts), in which case the script will start executing when the connection is made.

Script Commands

The QMODEM 4.5 script language is very comprehensive. Almost all terminal mode manual commands are available as script commands (and then some). Since equivalent

script commands perform the same functions as their manual counterpart, we also recommend that you familiarize yourself with the manual commands first; its documentation more thorough and we did not see the need to duplicate it for the script command. Commands that are unique to the script environment are covered in detail, however.

The script language is a programming language, and script files are special QMODEM 4.5 programs intended to perform specific functions. If you are not a programmer, do not let this intimidate you. The script language is easy to learn, and scripts are easy to read and modify. Error messages are clear and concise. The built-in debugger and QMODEM 4.5 Editor will help you along as you develop your scripts, in the unlikely event you make a mistake.

Scripts can be very flexible. They can be used in many ways that aren't described here. Scripts fall into one of four categories:

1. Linked scripts,

These scripts are physically named in entries in the QMODEM 4.5 Phone Directory. When connection is made, the script is executed automatically. The same script can be linked to multiple entries. These scripts are often referred to as "Logon Scripts", because they take control immediately after a connect and usually automate boring and repetitive logon processes.

Examples:

1. A BBS system has three nodes with different phone numbers. A single script like BOARD.LOG can be linked to all three numbers.

2. Scripts started with the [ALT][F] command, which require execution-time parameters. QMODEM 4.5 allows up to ten variable parameters to be passed to a script.

3. Scripts linked to Function Keys. Because they are stored in a Function Key Macro, you do not have to re-enter the parameters each time you run the Script.

4. Stand-alone Scripts, requiring no parameters. These scripts can be executed automatically when QMODEM 4.5 is started, by specifying their name in a command-line parameter.

   Example:

   To execute the script DOFIRST.SCR when starting QMODEM 4.5, use the command:

```
QMODEM /S=DOFIRST.SCR
```

Once initialization is complete, QMODEM 4.5 will load and execute the script whose name was specified in the /S= command-line parameter. This command line could be contained in a BATCH file to automate the process even further.

How to Create and Name a Script

Any standard ASCII text editor or word processor can be used to create a script file. You may save scripts under any file name and extension, but using the ".SCR" file extension makes life much easier, as we'll see later.

The easiest way to write a script is to let QMODEM 4.5 do it for you! Refer to the [ALT][Q] (QuickLearn) command for complete details. But, if you insist on doing it yourself with your favorite Word processor or Editor, remember these tips:

1. Scripts must be saved as standard, CR/LF-delimited ASCII files. Non-ASCII files like those produced by Wordstar Document mode won't work (for Wordstar, use N at the opening prompt to create scripts in the Non-Document mode).

2. Each Script command must be on a separate line in the file.

We recommend the Internal Editor for creating and editing scripts. Refer to the [ALT][V] and [ALT][J]/@EDIT commands for information.

Starting a Script

There are 3 ways to start a Script:

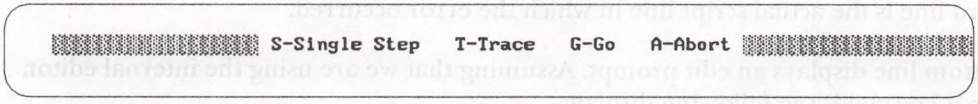
1. The command line switch /S= to "auto start" a script. Refer to the Command Line Switches for a description.

2. The explicit [ALT][F] command to call a script;.

3. Automatic execution of a Linked-Script attached to a Phone Directory entry. (See [ALT][D] for instructions on attaching a script to a dialing directory entry)

Stopping a Script

You can stop a script at any time by pressing the [ESC] key. The Status line will change to the following:



To cancel the script, press "A". Pressing "G" resumes script execution at the point where it was interrupted. The "S" and "T" commands are used to start Script Debug Mode (more on this later).

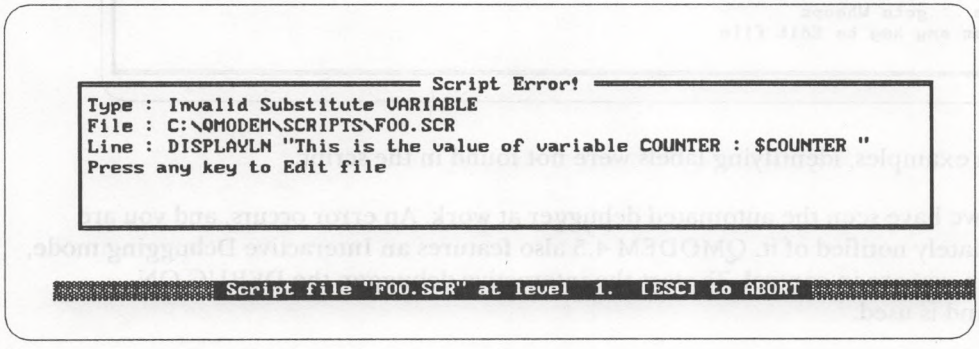
Debugging a Script

QMODEM 4.5 includes a powerful script debugger, complete with single-step and trace/animate features. In addition, if a script fails, the QMODEM 4.5 Internal Editor can be automatically invoked with the cursor positioned at the exact point where the error was detected.

Following is a simple script example to illustrate the debugger's operation:

```
;
; Script example
;
DISPLAYLN "this is the value of variable COUNTER : $COUNTER "
EXIT
```

The fourth line in the script refers to a variable called $COUNTER. This variable was not defined, and an error will result. Executing the script will cause the following window to be displayed:

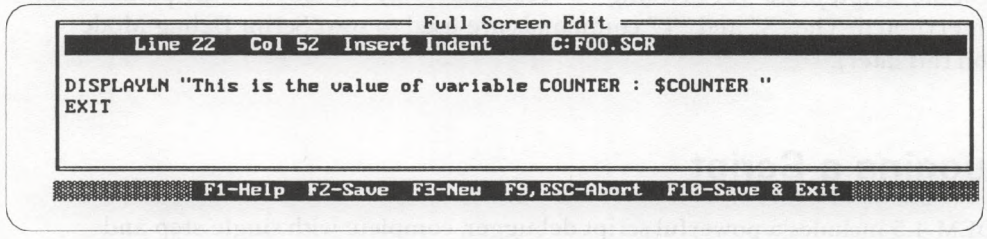

Script Error!
Type : Invalid Substitute VARIABLE
File : C:\QMODEM\SCRIPTS\FOO.SCR
Line : DISPLAYLN "This is the value of variable COUNTER : $COUNTER "
Press any key to Edit file
Script file "FOO.SCR" at level 1. [ESC] to ABORT

The first line describes the error (explained in detail in the next section). In this case, we have used an invalid variable.

The second line shows the fully qualified script filename.

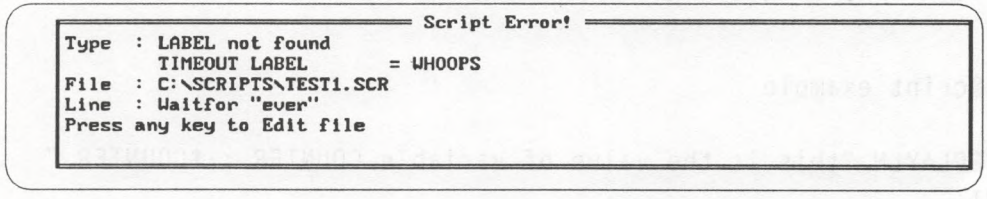
The third line is the actual script line in which the error occurred.

The bottom line displays an edit prompt. Assuming that we are using the internal editor, pressing a key yields the following display:

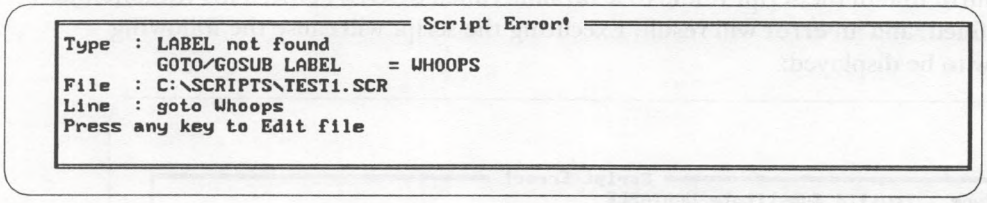

Full Screen Edit
Line 22 Col 52 Insert Indent C:FOO.SCR
DISPLAYLN "This is the value of variable COUNTER : $COUNTER "
EXIT
F1-Help F2-Save F3-New F9,ESC-Abort F10-Save & Exit

When using the QMODEM 4.5 Internal Editor, the cursor will be positioned under the $ in $COUNTER, which is the offending variable name.

Two additional error conditions yield different Script Error windows:


Script Error!
Type : LABEL not found
TIMEOUT LABEL = WHOOPS
File : C:\SCRIPTS\TEST1.SCR
Line : Waitfor "ever"
Press any key to Edit file

or


Script Error!
Type : LABEL not found
GOTO/GOSUB LABEL = WHOOPS
File : C:\SCRIPTS\TEST1.SCR
Line : goto Whoops
Press any key to Edit file

In both examples, identifying labels were not found in the script.

So far, we have seen the automated debugger at work. An error occurs, and you are immediately notified of it. QMODEM 4.5 also features an Interactive Debugging mode, in which you are in control. To start the interactive debugger, the DEBUG ON command is used.

Following is an example of interactive debugging:

```
;
; Script example
;
DEBUG ON ; turn on the debugger
STRING ONE TWO THREE ; define 3 new variables
ASSIGN ONE  "1"      ; give them numeric values
ASSIGN TWO   "2"
ASSIGN THREE "3"
DISPLAYLN " ONE = $ONE, TWO = $TWO, and THREE = $THREE"
EXIT
```

When the script is executed, the status line will change to:

```
DEBUG < >
```

In interactive debug mode, the next script line to be executed is displayed between the < > characters. To execute the statement, press the Spacebar. In the example, the first line following the DEBUG command is blank, and no text appears between the < >.

Pressing the Spacebar yields the following series of DEBUG status displays:

```
DEBUG <STRING ONE TWO THREE >
DEBUG <ASSIGN ONE   "1" >
DEBUG <ASSIGN TWO   "2" >
DEBUG <ASSIGN THREE "3" >
DEBUG <DISPLAYLN "ONE = $ONE, TWO = $TWO, and THREE = $THREE" >
```

A number of useful debug commands are available while single-stepping through a script. Pressing the F1 key displays a summary of these commands on the status line:

<screen>

After the command summary line has been displayed for approximately 2 seconds, the status line reverts back to the standard DEBUG display.

Interactive Debug commands include:

```
[SPACE] Next
```

Pressing the Spacebar executes the line displayed between the < > characters.

```
[T] Trace
```

Pressing "T" starts executing the script at the rate of 2 lines per second (Animate Mode).

```
[G] Go
```

Pressing "G" terminates interactive debug mode and resumes script executing with the next line. The script will execute until it ends normally, an error occurs, or another DEBUG ON command is found.

```
[S] Subst. Line
```

Pressing "S" displays (substitutes) the values of all variables in the current script line prior to execution.

```
[O] Orig. Line
```

Pressing "O" terminates variable substitution and re-displays current line in its Original form.

```
[U] Under
```

Pressing "U" temporarily suspends display of the Debug status line when running the script in full-screen mode and the normal status line itself is disabled (ALT N V T T OFF).

Going back to our script example, pressing "S" yields the following display:

<screen>

pressing Spacebar again...

```
DEBUG <EXIT >
```

pressing Spacebar again...

Returns us to the normal status line following the end of the script.

Special Characters in Scripts

In scripts, the caret (^) is used as a modifier when combined with certain other characters:

^ ~ A caret-tilde (~) combination generates a 1/2 second delay.

^ ^ A double-caret sequence yields a single-caret character.

To insert control characters in your scripts, prefix the letter with the ^ (caret).

Following is a list of valid control characters and the corresponding caret combinations:

Dec	Hex	Ctrl	Dec	Hex	Ctrl
0	00	^@	16	10	^P
1	01	^A	17	11	^Q
2	02	^B	18	12	^R
3	03	^C	19	13	^S
4	04	^D	20	14	^T
5	05	^E	21	15	^U
6	06	^F	22	16	^V
7	07	^G	23	17	^W
8	08	^H	24	18	^X
9	09	^I	25	19	^Y
10	0A	^J	26	1A	^Z
11	0B	^K	27	1B	^[
12	0C	^L	28	1C	^\
13	0D	^M	29	1D	^]
14	0E	^N	31	1F	^_
15	0F	^O			

Control characters are case-insensitive: ^C is the same as a ^c.

To generate the double-caret ^ ^ character in the internal editor, first type ^P, then type ^ ^. The editor will display a "^" in the same colors as the header line rather then normal text colors. This is normal and is used to represent an imbedded Ctrl character.

Comments may be added to scripts, and must be preceded by a semi-colon (;):

```
; A semicolon as the first character is always a comment
WAITFOR "Enter your password :"  ; This is a comment
SEND    "$Password^M"            ; another comment line
PASSWORD1:              ; a comment after a label
```

Comments are not displayed during script execution.

Make it a habit to add comments to your scripts wherever and whenever possible. Comments are an invaluable help when debugging or making changes to scripts, especially older, long-forgotten ones.

Definitions and Parameters

Script statements usually consist of an operation code and one or more operands or parameters. Parameters shown in brackets [ ] are optional. Parameters in quotes (" " or ' ') are mandatory.

For example:

```
DIAL  "1"
DIAL 'TMUstang'
```

Single- and double-quote characters should not be mixed except in special cases. For example, to send the following message:

```
John said, "QMODEM 4.5 is the BEST!"
```

you would code the following:

```
SEND 'John said, "QMODEM 4.5 is the BEST!"'
```

Single- and double-quote characters are interchangeable, but must be used in matched pairs. As shown above, use of one set of quote characters allows you to include the other as part of a text string. To send the following string:

```
John's password is QMODEM 4.5
```

the script code would be:

```
SEND "John's password is QMODEM 4.5 "
```

Labels

Labels define the targets of EXIST, GOTO, GOSUB, IF and WHEN commands. All labels must end with a colon. Below are some examples of valid script labels:

```
EXIT_LABEL:
A:
```

```
A_LONG_LABEL:
A_much_longer_label_than_the_others:
```

Labels must appear on a line by themselves. Comments are the only other statements allowed on label lines.

Pre-defined String Variables

The variables $0 through $9 are pre-defined and may be used anywhere in place of user-defined string variable. In addition, variables $0-$9 must be used if data is to be passed to the script in the form of parameters in the [ALT][F] command or F-key macros.

String variables may not exceed 64 characters in length. The variables $0-$9 can be set with the ASSIGN, GET, GETR, GETN, GETNR and GETX commands. For example, the statement:

```
ASSIGN 0 "This is a test"
```

store the text string:

```
This is a test
```

into variable $0.

Since string variables are replaced with their actual values before script commands are executed, the leading $ is omitted when one of the pre-defined string variables is the first operand in an ASSIGN statement. The following examples further illustrate this principle:

```
ASSIGN; 0 "QMODEM 4.5 is the Best!"   ; $0 becomes the quoted
string ASSIGN 1 $0; $1 is set to $0
```

And the statement:

```
SEND "$1"              ;the string $1 is sent
```

would send the following string to the modem:

```
QMODEM 4.5 is the Best!
```

Script commands can actually be stored into string Variables with an ASSIGN command, and used later in the script. For example:

```
ASSIGN 0 "WAITFOR "  ; $0 = WAITFOR [space]
$0 "Password "
```

would be interpreted as:

```
WAITFOR "Password "
```

If a dollar sign ($) is required as part of a text string, that character must be duplicated. For example:

```
SEND "This is a dollar sign : $$"
```

will send the following:

```
This is a dollar sign : $
```

String variables are very powerful tools indeed! With their flexible text and command substitution features, what can be done with them is only limited by your own imagination.

The next section of the manual describes QMODEM 4.5's script commands in detail. Commands are listed in alphabetical order, and appropriate coding examples are included for each command.

System Variables

Most of QMODEM 4.5's environment and operating parameters are stored in pre-defined, read-only variables which are available during script execution.

Pre-defined variables may not be the target of ASSIGN, GET or INKEY commands.

$DATE The $DATE variable contains the current system date, based on the internal clock. The date is returned as defined in ALT N O C D Date Mask.

$TIME The $TIME variable is similar to the $DATE variable. The time is returned in the format as defined in the ALT N O C T Time Mask.

$LAST_ROW The $LAST_ROW variable contains the number of the last line on the screen, not including the Status Line. For example, on an 80x25 screen, this variable contains the value 24.

$LAST_COL The $LAST_COL variable contains the physical screen width, in columns. On a 25x80 screen, this variable contains the value 80.

$ATTR The $ATTR variable contains the screen's current Color Attribute. In a script which changes the screen color, this value may be saved at the beginning of the script, and restored before the script terminates to re-establish the normal default screen color.

$DLPATH This contains the Download Path as specified in the ALT N D D Setup variable. You could use this to point to the download directory when using the DOWNLOAD script command.

$ULPATH This contains the Upload Path as specified in the ALT N D U Setup variable. It could be used in combination with the UPLOAD script command.

$SCPATH This is the Script Directory Path as specified by the ALT N D S Setup variable. All temporary scripts should be stored in this directory.

Connect Information Variables

QMODEM 4.5 stores information relating to the last successful connection (or the current one, if ONLINE) in a series of variables. For information to be valid, the connection must have been established through a standard DIAL command or a linked script.

$BOARD The $BOARD variable contains the name field of the directory entry to which QMODEM 4.5 was last successfully connected. This is a variable-length string which does not exceed 34 characters.

If you use the default QMODEM 4.5 Phone Directory, the commands:

```
DIAL "1"          ;dial the first phone book entry
NOTE Connected to $BOARD! ;display a connect msg
```

will display:

```
Connected to Mustang Software HQ!!
```

$NUMBER The $NUMBER variable contains the phone number of the last connected entry, as shown in the dialing directory.

Using the same example:

```
NOTE Connected to $BOARD at $NUMBER.
```

will display:

```
Connected to Mustang Software HQ! at 1-805-395-0650.
```

$PASSWORD The $PASSWORD variable contains the password field for the last connected entry, as stored in the dialing directory. $PASSWORD can be used in a generic logon (linked) script for BBSs running the same software. The following example will operate with WILDCAT! systems:

```
NOTE Connected to $BOARD ;display after connection
WAITFOR "First name"     ;wait for the name prompt
SEND "FIRST;LAST^M"      ;send your name
WAITFOR "Password"       ;wait for password prompt
SEND "$PASSWORD^M"       ;send the linked password
```

$SCRIPT The $SCRIPT variable contains the name of the linked script for the connected entry, as stored in the dialing directory. Using the above example, we could add another line as follows:

```
NOTE This is script $SCRIPT
```

which would display:

```
This is script MSI.SCR
```

$PROTOCOL The $PROTOCOL variable contains the default file transfer protocol assigned to the connected entry. It is used in SEND strings or script DOWNLOAD commands, as illustrated in the following example, which sends a file download request to a WILDCAT! BBS at the start-of-transfer prompt, and starts the actual download:

```
SEND  "D $PROTOCOL FILENAME.ARC^M"
WAITFOR      "[ctrl-X] to abort"
DOWNLOAD     $PROTOCOL FILENAME.ARC
```

$SPEED The $SPEED variable contains the current serial rate (i.e.., 300, 1200, 2400, 9600 etc...). The serial baud rate is set by the by the redialer before each number is dialed. If you are connected at 2400, the following command:

```
NOTE  Connected at $SPEED this time
```

will display:

```
Connected at 2400 this time
```

The baud rate may not be reset, depending on the state of the "Lock DTE Baud Rate" toggle in the [ALT][N][M][T] Setup menu.

$COM

The $COM variable contains the remainder of the communication parameters, in the form of Databits-Parity-Stopbits. If your current settings are No parity, 8 data bits, and one stop bit, and your serial rate is 2400, the command:

```
NOTE Connected at $SPEED-$COM
```

will display:

```
Connected at 2400-8-N-1
```

$NOTEFILE

This is the full DOS filename for the Attached Note file. Each entry has a unique Note file that can store information. Using this variable in combination with the text IO Script commands (OPENFILE, READFILE, CLOSEFILE), you can store remote computer specific information and load it every time you call that system.

```
Example Script SHOWNOTE.SCR:
EXIST $NOTEFILE CONT     ;see if it exists
DISPLAYLN "No attached notes" ;nope, say so
RETURN      ;exit back to logon script
CONT:
DISPLAYLN "Contents of attached Note file:"
DISPLAYLN "————————————————-"
OPENFILE $NOTEFILE READ ;open the note file
READLOOP:
READFILE 0  ;read
IF "$0" = "_EOF_" DONE  ;if end-of-file,
                        ;jump to DONE
DISPLAYLN "$0"          ;display the line
GOTO READLOOP           ;go back and read some more
DONE:
CLOSEFILE   ;close the note file
RETURN      ;return back to the logon script
```

This script simply opens the attached Note file and displays the contents. To activate it, just use the SCRIPT command to call this as a subroutine:

```
;
;  QuickLearn Script generated at 02:35:18 on 08-22-88
;  May require editing before use.
;
NOTE Attached Note File is : $NOTEFILE
                           ;if you're curious
SCRIPT SHOWNOTE.SCR        ;now show it
;rest of the auto-logon script
```

Script Commands

General Coding Information

Script commands usually consist of an Operation Code, often referred to as OpCode, and one or more Operands, also referred to as arguments, targets, or parameters. Opcode and operands are separated with spaces. In certain cases, a relational operator may separate parameters. For example, the script IF command has two operands separated by a relational operator:

```
IF "$0" = "$1" ROUTINE
```

IF is the OpCode, "$0", "$1" and ROUTINE are the operands, and = is the relational operator. In the example, the command compares the contents of variables 0 and 1, and branches to ROUTINE if they are equal.

Operands fall in one of the following categories:

EXPNUM: explicit numeric values. As with numeric variables, these values must be integers in the range 0-32,767. For example, in the command:

```
WINDOW 1 1 25 80
```

1 1 25 and 80 are explicit numeric values.

KEYWORD: keywords are reserved words defined internally in the script language. For example, all modem system variables and TURNON/TURNOFF parameters are keywords which may not be used as variable names for any other purpose.

LABEL: labels identify the beginning of a routine in a script. They are normal words followed by a colon. They are used as parameters in explicit GOTO and GOSUB statements, or implicitly in IF, WAITFOR and WHEN statements:

```
IF "$0" = "$1" ROUTINE .
.
.
ROUTINE:
.
.
```

if variable 0 is equal to variable 1, branch to the label called ROUTINE.

```
GOTO MYPARTY
.
.
MYPARTY:
.
.
```

branches unconditionally to the label MYPARTY.

NUMVAR: numeric variable. All numeric values and variables used in scripts must be positive integers, and their value may not exceed 32,767. Numeric variables are not defined explicitly; the same variable may be used for the storage of text or numeric data. It is the user's responsibility to insure that the variable contains numeric data when required.

STRING: a string is an element of text delimited by quotes. Strings may contain imbedded blanks. In the example:

```
ASSIGN 0 "This is text"
"This is text" is a string.
```

WORD: a self-delimiting alphanumeric value not bound by quotes, and not containing imbedded blanks. A word can also be defined as a string without blanks and without quotes. In the example:

```
ASSIGN 0 THISISAWORD
```

THISISAWORD is a word variable. The command:

```
ASSIGN 0 "THISISAWORD"
```

is functionally identical to the previous one.

Script Command Reference

Following is a complete description of all available script commands. Each command is documented in an easy-to-understand format:

Script Command

Function A brief description of the command.

Declaration A brief description of the command's syntax.

Remarks A more detailed description of the command, including parameters and their values, and how the command interacts with the rest of the script and the system in general.

Restrictions Limitations, or warnings that apply to the command or its parameters. If the command has no restrictions, this section will be omitted.

See also Related script commands.

Example Limited Coding example. For in-depth script examples, refer to the Utilities Disk.

ATWRITE

Function Display a text string anywhere on the screen.

Declaration `ATWRITE COL ROW ATTRIBUTE STRING`

Remarks COL, ROW and ATTRIBUTE are explicit numeric values or variables. ROW and COL must be valid screen coordinates and are not restricted to the values set by the WINDOW and BOX commands. ATTRIBUTE must be in the range 0-255. The COLOR command gives a complete description of Color Attributes and how to compute them.

See also `COLOR`

Example

```
ATWRITE 1,1,15,"This is a test" ;put the msg in
                                ;the upper left corner in high
                                ;intensity white on a black
                                ;background
ATWRITE 1 24 30 "$0"
                                ;write the text in
                                ;variable $0 on the last
                                ;line using yellow
                                ;on a blue background
```

ASSIGN

Function Store a value into a variable.

Declaration `ASSIGN VARIABLE WORD|STRING`

Remarks This command stores the contents of a word or string VARIABLE. The $ variable prefix is not used in order to prevent value substitution during script parsing. If the string contains embedded quote characters, use the other quote character (IE., single ' and double " quotes) to enclose the string.

See also `STRING`

Example

```
ASSIGN 0 TEST              ;sets $0 to "TEST"
ASSIGN 0 "Test string"     ;sets $0 to "Test string"
```

```
ASSIGN 0 $1                ;sets $0 to equal $1
ASSIGN THIS "John's Wife is Kathy"
ASSIGN THAT "$THIS"        ;needs quotes because of
                           ;spaces and quote embedded
                           ;in $THIS
```

BEEP

Function Produce a sound through the speaker.

Declaration `BEEP  TONE`

Remarks TONE is an explicit numeric value or variable and specifies the frequency in Hertz (cycles/sec). The sound lasts approximately 1/5 sec. Multiple BEEP commands may be grouped together to produce more meaningful sounds (IE., alarms). If TONE is non-numeric, an error occurs.

Example

```
BEEP 1200          ;a 1200 Hz tone
BEEP 1400          ;a 1400 Hz tone
STRING TONE        ;define a new variable called TONE
GET    TONE 4      ;prompt for the value of TONE
                   ;no check is made for invalid data
BEEP   $TONE       ;beep at $tone Hz
```

BOX

Function Draw a Box on the screen and set the logical screen dimensions.

Declaration `BOX  C1  R1  C2  R2`

Remarks This command is used to define an on-screen logical window. The window is defined by its upper left corner at row R1, column C1, and its bottom right corner at row R2, column C2. Row and column values must be explicit numeric values or variables, separated by spaces or commas.

After a BOX or WINDOW command, the output of screen display commands (except ATWRITE) is restricted to the area defined in the BOX command.

Coordinates values are not verified; you must insure that C2C1, R2R1, and all four values are valid screen locations.

The upper left corner of the screen is at coordinates 1,1.

See also WINDOW;, GETSCR, PUTSCR

Example

```
BOX 1,1,80,24      ;opens a window the full
                   ;size of the screen.
BOX 20,4,60,8      ;opens a window 40 cols wide by 4
                   ;lines high.
BOX 20 4 60 8      ;same as above without comma
                   ;delimited.
```

If you have an EGA or VGA display, the lower right corner may vary with the screen dimensions (See [ALT][2] or [ALT][4]).

BREAK

Function Send the UART BREAK signal.

Declaration BREAK

Remarks The BREAK command sends the UART Break signal for 1.5 seconds (or the timer value defined by [ALT][N][D][B]). BREAK is the script equivalent of the Ctrl-End command.

Example

```
BREAK ;Send the break signal
```

CAPTURE

Function Open a File to capture all terminal I/O.

Declaration CAPTURE FILENAME

Remarks The filename should be a fully qualified, valid DOS filename. FILENAME must be a word or string variable. If the drive and path are omitted, the current drive:\path is assumed. If the file exists, data will be

added to the end of it (appended). If the file does not exist, it will be created.

To close the capture file, use the TURNOFF CAPTURE command.

CAPTURE is the script equivalent of the Ctrl-Home command.

See also TURNOFF

Example

```
CAPTURE C:\QMODEM\TEXT\CAPDATA.DAT
CAPTURE THISFILE.DAT     ;in the current directory
TURNOFF CAPTURE
```

CHDIR

Function Change to a new Drive:\Directory.

Declaration CHDIR DIRECTORY

Remarks This command is used to change the default DOS directory to that specified in the DIRECTORY variable. DIRECTORY must be a word or string variable. If a new drive specification is included in the DIRECTORY variable, the current drive will also be changed.

CHDIR is the equivalent of the ALT O command (and of the ALT L command if the drive is changed).

See also DRIVE

Example

```
CHDIR \              ;change to the root directory
CHDIR C:\QMODEM      ;change to C:\QMODEM
DISPLAY "Enter the new directory ? " ;a prompt
GET NEWDIR 64        ;get the new directory
CHDIR $NEWDIR        ;and do the change
```

CLOSEFILE

Function Closes the currently open TEXT file.

Declaration CLOSEFILE

Remarks The CLOSEFILE command closes the file opened by the OPENFILE command. For a complete explanation, see the OPENFILE command.

See also OPENFILE, READFILE, WRITEFILE

Example

```
OPENFILE TEXT.DOC READ  ;open text.doc for reading
READFILE 0              ;read the first line into $0
CLOSEFILE               ;close the file
```

CLRSCR

Function Clear the logical screen.

Declaration CLRSCR

Remarks CLRSCR clears the current active window. If a WINDOW or BOX command has not been issued, the entire screen is cleared. CLRSCR is the script equivalent of the ALT C command.

See also BOX, WINDOW

Example

```
CLRSCR          ;clear the screen
BOX 1 1 80 14       ;open a window on the screen
CLRSCR              ;clear the window
WINDOW 1 1 80 24    ;define the "full screen"
CLRSCR              ;clear the whole screen
```

COLOR

Function Defines the color of displayed text.

Declaration COLOR ATTRIBUTE

Remarks This command sets both foreground and background colors with a single attribute. ATTRIBUTE is an explicit numeric value or variable. The following values are needed to compute the color attribute:

0 Black	8 Dark Gray	+128 Blink
1 Blue	9 Light Blue	
2 Green	10 Light Green	

3	Cyan	11	Light Cyan
4	Red	12	Light Red
5	Magenta	13	Light Magenta
6	Brown	14	Yellow
7	Light Gray	15	White

Foreground colors may be 0 thru 15; background colors may be 0 thru 7. To compute the correct attribute, use the following formula:

```
ATTRIBUTE = Foreground + (16 * Background)
```

For a blinking foreground, add 128 to the attribute. To help you, we have included a Script called COLORS.SCR on Utilities Disk. Run this script to view all available combinations and values.

See also ATWRITE

Example

```
COLOR 30      ;Yellow on Blue
COLOR 2       ;Green on Black
COLOR 207     ;Blinking White on Red
COLORBG
```

Function Changes just the background color of displayed text.

Declaration `COLORBG ATTRIBUTE`

Remarks This command sets the background color with a single attribute. ATTRIBUTE is an explicit numeric value or variable. The following are valid ATTRIBUTE values:

0 Black

1 Blue

2 Green

3 Cyan

4 Red

5 Magenta

6 Brown

7 Light Gray

See also ATWRITE, COLOR, COLORFG

Example

```
COLORBG 1     ;Changes the background to Blue
```

COLORFG

Function Changes just the foreground color of displayed text.

Declaration COLORFG ATTRIBUTE

Remarks This command sets the foreground color with a single attribute. ATTRIBUTE is an explicit numeric value variable. The following values are valid color attributes:

0 Black	8 Dark Gray
1 Blue	9 Light Blue
2 Green	10 Light Green
3 Cyan	11 Light Cyan
4 Red	12 Light Red
5 Magenta	13 Light Magenta
6 Brown	14 Yellow
7 Light Gray	15 White

For a blinking foreground, add 16 to the attribute.

See also ATWRITE, COLOR, COLORBG

Example

```
COLORFG 7    ;change the foreground to white
```

DEBUG

Function Enable or disable the Internal Script Debugger.

Declaration DEBUG ON|OFF

Remarks The DEBUG command is useful in developing complex scripts since you can trace script execution on-screen and in real-time mode. DEBUG is OFF by default when a script starts.

Example

```
DEBUG ON            ;Turn it on
- - - execute script commands - - -
DEBUG OFF          ;Turn it back off
```

DECR

Function Decrement the value stored in a variable.

Declaration `DECR  VARIABLE`

Remarks DECR decrements the value of a numeric variable by 1. If the variable is non-numeric or not greater than zero, an error will occur.

See also INCR, STRING, ASSIGN

Example

```
ASSIGN  0 10                ;load $0 with 10
LOOP:                       ;a place to loop to
DISPLAY "$0"                ;display the value
DECR    0                   ;decrement $0 by 1
IF      "$0" = "0" DONE     ;if it is equal to 0
                            ;goto DONE
GOTO    LOOP                ;Branch back to LOOP
DONE: ;Exit point
```

DELAY

Function Pause a script for a certain amount of time.

Declaration `DELAY  DELAYVALUE`

Remarks DELAYVALUE is an explicit value or numeric variable containing the duration of the delay in milliseconds (1000 = 1 second). This is similar to the PAUSE command, but no characters are displayed during a DELAY. You might want to use this command when building menus or displaying online help.

See also PAUSE

Example

```
DELAY 1000  ;stops for 1 second
DELAY 10000 ;stops for 10 seconds
DELAY 100   ;stops for 1 tenth of a second
```

DIAL

Function Used to tag and dial one or more entries.

Declaration DIAL DIALSTRING

Remarks The DIAL command is used to call one or more entries stored in the phone directory. DIALSTRING is a string or string variable in the same format as the Tag Multiple entry in the [ALT][D] directory display. Please refer to the Tag Multiple command under [ALT][D] for additional information.

Example

```
DIAL "1"              ;dial entry number 1.
DIAL "TMustang"       ;dial all numbers that match
                      ;the text "MUSTANG".
DIAL "PA1B PA2"       ;dial 1 & 2 with Prefix modifiers.
```

Restrictions If a script is linked to the entry being dialed, it will not be executed. All commands to be executed must be defined in the script file which contains the DIAL command.

Example

```
SEND "ATDT 1 319 266-0540^M"  ;dial the number
WAITFOR "CONNECT"             ;wait for connect
- - -                        ;more commands
```

DIAL keeps dialing the same entry until a connection is established. To dial a number once without re-tries, use the SEND command with the appropriate modem dialing string.

If you sort the phone book and make explicit reference to entry numbers, be sure to reflect the changes in your script's DIAL commands. To dial an entry regardless of its number, use the Text Match tagging method.

DISPLAY

Function Display a line of text on the screen.

Declaration DISPLAY TEXT

Remarks The TEXTSTRING string or string variable is displayed at the current cursor position and in the current color. Following the DISPLAY, the cursor is located after the last character in TEXTSTRING. The text is not sent to the serial port. The cursor position is set by default following a DISPLAY, DISPLAYLN, NOTE or ATWRITE statement, or by the user with a GOTOXY statement. The color is the screen's default, or is set by the user with a COLOR statement.

See also ATWRITE, COLOR, DISPLAYLN, GOTOXY, NOTE

Example

```
GETSCR                    ;save the screen
BOX      1 1 20 9         ;draw a box
COLOR    11               ;set color to Light Cyan
GOTOXY   6 2              ;go to col 6, row 2
DISPLAY "TEST MENU"       ;show heading
COLOR    10               ;set Light Green color
GOTOXY   3 4
DISPLAY "A) Option one"
GOTOXY   3 5
DISPLAY "B) Option two"
GOTOXY   3 6
DISPLAY "C) Option three"
GOTOXY   3 7
DISPLAY "D) Option four"
GOTOXY   3 7
DISPLAY "Option # ? "
COLOR    15               ;set color to White
GET      0 1              ;read character into $0
PUTSCR                    ;restore the screen
```

DISPLAY is similar to the basic statement PRINT "Text"; (note the semicolon) which does not automatically re-position the cursor to the next line and allows concatenation of displayed strings on the screen.

DISPLAYLN

Function Display a line of text on the screen.

Declaration `DISPLAYLN TEXT`

Remarks The text defined by TEXT is displayed at the current cursor position and in the current color. Following the display, the cursor is located on the first column of the next line in the logical screen. The text is not sent to the serial port. Original cursor location and color is described under the DISPLAY command.

See also `DISPLAY, ATWRITE`

Example

```
GETSCR                  ;save the screen
COLOR     11            ;set color to Light Cyan
DISPLAYLN "TEST MENU"   ;show heading
COLOR     10            ;set Light Green color
DISPLAYLN "A) Option one"
DISPLAYLN "B) Option two"
DISPLAYLN "C) Option three"
DISPLAYLN "D) Option four"
DISPLAY   "Option # ? "
COLOR     15                ;set color to White
GET       0 1               ;read character into $0
PUTSCR                      ;restore the screen
```

DISPLAYLN is similar to the basic PRINT "Text" statement (note lack of a trailing semicolon) which relocates the cursor to beginning of the next line after printing.

DOS / BIGDOS

Function Execute a DOS command.

Declaration

```
DOS   COMMAND
BIGDOS   COMMAND
```

Remarks DOS is the script equivalent of the [ALT][R] command; it invokes the QMODEM 4.5 DOS Shell, and it is subjected to the same limitations. Please refer to the [ALT][R] command for additional information on the DOS Shell. COMMAND must be a word, string, or string variable.

The DOS command disables the Optimum Shell ([ALT][N][O][R][O]) for the duration of the command. The BIGDOS leaves this enabled if so set in the Setup. Each has an advantage.

DOS is faster if you do not have sufficient EMS memory because it will swap a large file to disk. BIGDOS makes almost 220 more K available during the Shell. If you have lots of EMS, then you most certainly will want to use BIGDOS.

Example

```
DOS "Copy text.doc PRN"          ;copy a doc file to
                                 ;the printer.
BIGDOS "123"                     ;run Lotus 123 with
                                 ;lots of free memory.
DOS "type text.doc|more"         ;even pipes and
                                 ;redirection work!
BIGDOS "COMMAND"                 ;will invoke the
                                 ;command prompt
                        ;until EXIT is entered, just
                        ;like [ALT][R]
```

DOWNLOAD

Function Receive a file.

Declaration

```
DOWNLOAD  PROTOCOL  FILENAME  [ASCII options]
```

Remarks

DOWNLOAD is the script equivalent of the PgDn command. PROTOCOL must be one of the internal or external file transfer protocols defined to QMODEM 4.5. FILENAME must be fully qualified (include the drive and path) or it will be saved in the current directory. In the case of Batch transfer protocols (Y, G and Z), the FILENAME is actually a PATH and must be specified.

Status information is shown in a window while the transfer takes place.

Internal Protocols:

A	ASCII	X	Xmodem
C	Xmodem CRC	R	Relaxed Xmodem
O	Xmodem-1K	F	Xmodem-1K/G
Y	Ymodem Batch	G	Ymodem/G Batch
Z	Zmodem Batch		

ASCII downloads can have optional parameters to aid in conversion from one system to another. They can be specified in any order and are not case sensitive. The parameters are:

XLATE=[ON|OFF] Sets translate table usage.

CR=[NONE|STRIP|ADDLF] Sets CR handling options.

LF=[NONE|STRIP|ADDCR] Sets LF handling options.

See also UPLOAD

Example

```
DOWNLOAD Y C:\QMODEM\     ;Batch Ymodem download
CHDIR  C:\QMODEM          ;change directory
DOWNLOAD C QM42SST.ZIP    ;put in current directory
DOWNLOAD A Filename XLATE=on CR=addlf LF=strip
```

This will filter the incoming data through the Input Translate Table, add one LF after each CR, and strip all LF's as it saves to FILENAME.

When using the ASCII protocol, QMODEM 4.5 must receive a ^Z (EOF) character or the download will never terminate.

DRIVE

Function Change the default drive.

Declaration `DRIVE LETTER`

Remarks DRIVE changes the default logged drive, but does not switch directories as does the CHDIR command. LETTER is any valid drive letter in your system (A-Z), including those defined with the DOS SUBST command.

DRIVE is the equivalent of the [ALT][L] command.

See also `CHDIR`

Example

```
DRIVE A      ; switch to the A: floppy drive
DRIVE C      ; switch to the C: drive
DRIVE Z      ; switch to the Z: drive
```

EGA

Function Change screen size on systems equipped with EGA or VGA display adapters.

Declaration `EGA 25|43|50`

Remarks EGA changes the number of screen lines to the new value specified in the command (43 and 50 are interchangeable to remain compatible with previous releases of QMODEM 4.5). If 43 or 50 is specified, EGA systems will switch to an 80x43 screen size, while VGA cards will switch to 80x50.

EGA is the equivalent of the [ALT][2] and [ALT][4] commands.

Restrictions This command is ignored if no EGA or VGA is present.

Example

```
EGA 43  ;switch to 80x43 (EGA) or 80x50 (VGA).
EGA 25  ;switch to 80x25 for both EGA and VGA.
```

The screen will be cleared after each EGA command.

EXIST

Function Conditional branch depending on the presence of a file.

Declaration `EXIST FILENAME LABEL`

Remarks If FILENAME is found, the script will jump to the location in LABEL. If a wildcard filename is passed, at least one match will set the $SUCCESS flag and a jump to LABEL occurs. If there are no matches, the $FAIL flag is set and script execution will continue with the next sequential statement.

Example

```
EXIST C:\AUTOEXEC.BAT YES      ;if there is an
                ;autoexec.bat in the
                ;C:\ root directory, jump to label YES:
- - -          ;do other script commands
                ;if it does not exist.
YES:  ;label
ASSIGN 0 C:\AUTOEXEC.BAT       ;assign $0 the filename
EXIST $0 YES            ;same as above
```

EXIT

Function Terminates the script and returns to terminal mode.

Declaration `EXIT`

Remarks The script is unconditionally stopped, and control returns to QMODEM 4.5 .

See also `RETURN`

Example

```
EXIT            ;stop the scripts
NOTE text       ;does NOT execute because of EXIT
```

FKEY

Function Execute an F-Key macro.

Declaration FKEY KEYNO

Remarks FKEY executes the command stored in the current function key file. The function key and shift state are defined by the explicit numeric value or variable KEYNO, based on the following table:

1 - 12	Normal	F1 - F12
13 - 24	Shift	F1 - F12
25 - 36	Ctrl	F1 - F12
37 - 48	Alt	F1 - F12

See also LOADKEY

Example

```
FKEY 27      ;send the string stored in Ctrl-F3.
FKEY 1       ;send the string in F1.
```

FKEY will execute commands stored in function keys 11 and 12, even if your keyboard has only 10 function keys rather than 12. Refer to the [ALT][J] command for information on storing commands into function keys.

FLUSH

Function Clear the Keyboard buffer, COM port buffer, or both.

Declaration FLUSH KBD|COM|ALL

Remarks FLUSH clears data pending in the keyboard buffer (KBD option), the COM port buffer (COM option), or both (ALL). Any pending input data stored in the buffers is lost.

Example

```
DISPLAY "What is your name? " ;ask for a name
FLUSH   COM                   ;clear the com port
GET     1 20                  ;read it into $1
```

GET

Function Read data from the keyboard and store it into a variable.

Declaration `GET KBDATA COUNT`

Remarks Input: KBD

Output: Screen and COM port

The GET command only accepts data from the local keyboard. The data is echoed to the screen AND to the COM port.

KBDATA is any valid string variable; its name is not preceded with the "$" identifier. COUNT is an explicit numeric value or variable which defines the maximum number of characters in the input string. ENTER terminates the GET command.

See also GETR, GETN, GETNR, GETX, INKEY

Example

```
DISPLAY   "Enter number ?"     ;prompt for number.
GET       0 2                  ;read 2 chars max.
DISPLAYLN "You entered $0"     ;show it again.
```

GETR

Function Read from both the local keyboard and COM port and store it in a variable.

Declaration `GETR KBCOMDATA COUNT`

Remarks Input: KBD and COM port

Output: Screen and COM port

GETR is a superset of the GET command which also accepts data from the COM port. Data is displayed on the screen and echoed back to the COM port.

Parameters and coding syntax are identical to the GET command.

If online checking is enabled with the TURNON ONLINE command, GETR will check the modem for an ONLINE condition. If the

connection is lost (IE., carrier drop), the variable will contain the string "_OFFLINE_", regardless of the value in COUNT.

See also GET, GETN, GETNR, GETX, INKEY

Example

```
WRITE   "Enter number ?"
                    ;ask for number over COM port
GETR    0 2 ;read 2 chars max
WRITELN "You entered $0"
                    ;show again on both screens
TURNON ONLINE       ;online checking active
WRITE  "Enter a number ? "      ;prompt for a number
GETR   num 5        ;read the number
- - -                  - - -
- - -  Carrier drops  - - -
                    ;the caller hung up...
- - -                  - - -
IF '$num' = '100' Label_100
                    ;if num=100, goto Label_100.
IF '$num' = '_OFFLINE_' Cycle
                    ;if caller hung up, goto Cycle.
```

GETN

Function Read from the local keyboard and store it in a variable.

Declaration GETN KBDATA COUNT

Remarks Input: KBD

Output: Screen

The GETN command accepts data from the local keyboard. The characters are displayed on the local screen only.

GETN is syntactically identical to GET.

See also GET, GETR, GETNR, GETX, INKEY

Example

```
DISPLAY   "Enter number ?"     ;ask for number
GETN      0 2      ;read 2 chars max
DISPLAYLN "You entered $0"
                   ;show again on local screen
```

GETNR

Function Read from both the local keyboard and COM port and store it in a variable.

Declaration `GETNR  KBCOMDATA  COUNT`

Remarks Input: KBD and COM port

Output: Screen

GETNR reads data from the local keyboard and from the COM port. The characters are displayed on the local screen only.

GETNR is syntactically identical to GETR, and the GETR online dependency and restrictions also apply to GETNR.

See also GET, GETN, GETNR, GETX, INKEY

Example

```
WRITE   "Enter number ?"          ;ask for number
GETNR   0 2                       ;read 2 chars max
WRITELN "Caller entered $0"       ;show again on local
                                  ;screen
TURNON ONLINE                     ;online checking active
WRITE  "Enter a number ? "        ;prompt for a number
GETNR  num 5                      ;read the number
- - -                      - - -
- - -  Carrier drops  - - -      ;the caller hung up...
- - -                      - - -
IF '$num' = '100' Label_100       ;if num=100,
                                  ;  goto Label_100.
IF '$num' = '_OFFLINE_' Cycle     ;if caller hung up,
                                  ;  goto Cycle.
```

GETSCR

Function Save a copy of the current screen in memory.

Declaration GETSCR

Remarks GETSCR saves a snapshot of the current screen for later re-display with the PUTSCR command.

Restrictions GETSCR may be nested up to three levels deep. A "nesting level" is defined as a corresponding pair of GETSCR/PUTSCR commands. Beyond the third nesting level, an error condition occurs.

See also PUTSCR, CLRSCR

Example

```
GETSCR      ;save screen level 1
- - -      ;process
GETSCR      ;save screen level 2
- - -      ;process
CLRSCR      ;clear the screen
- - -      ;do more script commands
PUTSCR      ;restore screen level 2
- - -      ;process
PUTSCR      ;restore screen level 1
```

The above example demonstrate 2-deep GETSCR/PUTSCR nesting.

GETX

Function Read data from both the local keyboard and the COM port and storing it in a variable.

Declaration GETX KBCOMDATA COUNT CHARACTER

Remarks Input: KBD and COM port

Output: Screen

GETX captures incoming keyboard and COM data and stores it into the KBCOMDATA variable. CHARACTER terminates the input in addition to ENTER.

Unlike other GET commands which require a carriage return to indicate the end of the input, GETX his will terminate when one of the following conditions is met:

CHARACTER is found in the input data,

COUNT characters have been received, or

ENTER has been received.

If online checking is enabled with the TURNON ONLINE command, GETX will check the modem for an ONLINE condition. If the connection is lost (IE., carrier drop), the variable will contain the string "_OFFLINE_", regardless of the value in COUNT.

See also GET, GETR, GETN, GETNR, INKEY

Example Let's assume that you are logging into an information service. After logon, the service sends you a message that tells how many new messages there are to read. You want to capture just the number for later use in the script. The message is in the following form:

```
                        ;"NEW MESSAGES (xxx)"
                        ;where xxx is the number.
WAITFOR "MESSAGES ("    ;look for beginning of number
GETX 0 4 )              ;grab up to 4 characters or
                        ;until the ")" character.
```

GOSUB

Function Call a subroutine at a specified LABEL.

Declaration GOSUB LABEL

Remarks GOSUB passes control to a routine identified by its LABEL. Upon completion, the routine must use a RETURN command, at which time script execution resumes with the statement immediately following the GOSUB. GOSUB/RETURN may be nested up to a maximum of 20 levels.

Restrictions SCRIPT commands and GOSUB/RETURN share a single nesting process. Together, they may not exceed 20 nesting levels in any combination.

See also GOTO, RETURN, EXIT

Example

```
GOSUB SUB1  ;call the SUB1 subroutine
EXIT        ;end the script
SUB1:       ;the subroutine SUB1
- - -       ;script commands
RETURN      ;end of subroutine
            ;will branch back to the EXIT statement
```

GOTO

Function Unconditional branch to a LABEL in the script.

Declaration GOTO LABEL

Remarks GOTO passes control to the routine identified by LABEL. Control cannot be returned by the routine which was the target of the GOTO.

See also GOSUB, RETURN, EXIT

Example

```
GOTO SUB1           ;jump to SUB1
BACKHERE:           ;
EXIT                ;end the script
SUB1:               ;the subroutine SUB1
- - -               ;script commands
GOTO BACKHERE       ;end of subroutine. go back up
```

GOTOXY

Function Locate the cursor at a known screen position.

Declaration GOTOXY COL ROW

Remarks COL and ROW are explicit numeric values or variables and must contain valid logical screen coordinates. If coordinates are invalid, the cursor will not be re-positioned.

See also BOX, WINDOW

Example

```
GOTOXY 1 1          ;homes the cursor
GOTOXY 80 24        ;puts cursor in lower right corner
WINDOW 1 1 80 14    ;set a new window dimension
GOTOXY 40 20        ;FAILS, not inside the window
```

GRAPHICS

Function Change Terminal Emulation mode.

Declaration `GRAPHICS EMULATION`

Remarks GRAPHICS changes the terminal protocol to the EMULATION variable. It is the script equivalent of the [ALT][G] command. EMULATION must be one of the following:

TTY	No Emulation
ANSI	Internal ANSI driver
VT100	DEC VT100 terminal
VTI925	Televideo 925 terminal
DEBUG_A	Debug ASCII mode
DEBUG_H	Debug HEX mode
AVATAR	Avatar Emulation

Example

```
GRAPHICS TTY      ;switch to TTY mode
GRAPHICS VT100    ;switch to VT100 mode.
```

The screen will clear when executing this command.

HANGUP

Function Return the modem on Hook (Terminate the current online session).

Declaration `HANGUP`

Remarks HANGUP is the script equivalent of the [ALT][H] command. The modem hangup command is sent and the connection, if any, is terminated.

Example

```
WAITFOR "COMMAND" ;wait for the command prompt
SEND    "G^M"     ;send the [G]oodbye command
HANGUP            ;disconnect
```

HOST

Function Start the built-in Host Mode from a Script.

Declaration

```
HOST SINGLE (type 1)
HOST REPEAT (type 2)
```

Remarks HOST is the script equivalent of the ALT 5 command. Depending on the parameter, the Host will cycle after the caller, or continue until the host is stopped manually or through the Host Shutdown command.

Example of (type 1)

```
LOOP: ;Top of loop
;---
;Script commands to get ready for Host
HOST SINGLE ;Start host for ONE CALLER ONLY!
;---
;Caller hung up, so script continues here
;---
;decide if you want to take more callers...
Goto LOOP   ;yes, so cycle around and
            ;start the Host.
```

Example of (type 2)

```
HOST REPEAT ;Start host for CONTINUOUS OPERATION!
;---
;Script continues here if you pressed ESC
;or call in and execute the SHUTDOWN
;Host Command.
```

IF

Function Conditional branch based on the result of a test.

Declaration

```
IF  STRING1  OPCODE  STRING2  LABEL (type 1)
IF  CONDITION  LABEL (type 2)
```

Remarks Type 1:

If the result of the test defined by OPCODE is true, the script will branch to the routine called LABEL. Valid OPCODEs are:

OPCODE	Test Performed
=	If string1 equals string2, goto label
<	If string1 less than string2, goto label
>	If string1 greater than string2, goto label
<=	If string1 less than or equal to string2, goto label
>=	If string1 greater than or equal string2, goto label
<>	If string1 not equal to string2, goto label

If STRING1 and STRING2 contain numeric values, a numeric comparison is performed. If either is non-numeric, the two strings are compared based on their ASCII character values.

Type 2:

IF checks for a specific condition and branch to LABEL if true. Valid conditions are:

$ONLINE	;if Online, goto label
$OFFLINE	;if Offline, goto label
$SUCCESS	;if last operation was successful, goto ;label
$FAIL	;if last operation failed, goto label

$ONLINE and $OFFLINE reflect the status of the carrier detect (CD) signal. The ONLINE/OFFLINE indicator is also displayed on the QMODEM 4.5 status line.

The $SUCCESS and $FAIL indicators are set by the following commands:

UPLOAD, DOWNLOAD, CHDIR, DRIVE and HANGUP.

The state of $SUCCESS or $FAIL must be set by one of these commands before the indicators can be checked. Once set, the state remains the same until it is changed again by the completion of another eligible command. Referring to either variable before it is set yields unpredictable results.

Example of (type 1)

```
IF '$0' = 'YES' Yes_Label      ;if $0 = YES, goto
                               ;  Yes_Label
IF "$0" = " "    Nul_Label     ;if $0 is empty, goto
                               ;  Nul_Label
```

Example (type 2)

```
IF $ONLINE Skip_Dial     ;go around dial if ONLINE
DIAL "1"                 ;dial if offline.
Skip_Dial:               ;continue...
S1:                      ;a label
DOWNLOAD X TEST.DOC      ;download a file
IF $FAIL S1              ;if failed, go try again
```

INCR

Function Increment a numeric variable.

Declaration

```
INCR  NUMVAR
```

Remarks INCR adds 1 to the value of a numeric variable. If the value before the INCR command was 32767, the variable will be set to zero.

Restrictions If NUMVAR contains non-numeric data, a script error will occur.

See also DECR

Example

```
ASSIGN 0 0  ;load $0 with 0
```

```
LOOP:
DISPLAY "$0"              ;show it.
INCR 0                    ;now increment it.
IF '$0' = '10' DONE       ;loop until done
GOTO LOOP
DONE:
```

INKEY

Function Reads a single character from the keyboard or COM port.

Declaration `INKEY INDATA`

Remarks INKEY reads a single character from the COM port or keyboard (whichever is received first) and stores it into the INDATA variable. Any keystroke or COM data is valid and ENTER does not have to be pressed for the script to continue. This command is useful to select menu options, for example.

See also GET, GETR, GETN, GETNR

Example

```
DISPLAYLN "MENU"
DISPLAYLN " "
DISPLAYLN "    A)  Call The Mustang Software HQ! BBS"
DISPLAYLN "    B)  Call GEnie"
DISPLAYLN "    C)  Call it a day"
DISPLAYLN " "
DISPLAY   "   ?"
TOP:
INKEY 0              ;Store result in $0
IF "$0"  "A" TOP     ;Try again
IF "$0"  "C" TOP     ;if not a valid choice
                     ;Now $0 is either A, B or C.
```

LOADFON

Function Load a new Phone Book into memory.

Declaration
```
LOADFON  FONFILE
```

Remarks LOADFON loads a new QMODEM 4.5 phone book. It is the script equivalent of the [ALT][D][L] command. FONFILE should be a word, string, or variable containing a fully qualified DOS filename with the .FON extension. If the drive and path are omitted, the current directory is searched. Refer to the [ALT][D] command for additional information on QMODEM 4.5 phone directories.

Restrictions The FILENAME must end with the .FON extension or an error will occur.

See also DIAL

Example
```
LOADFON  C:\QMODEM\PCP.FON     ;load a new FON file
LOADFON  C:\QMODEM\QMODEM.FON ;reload the original
```

LOADKEY

Function Load a new [ALT][J] Macro KEY file.

Declaration
```
LOADKEY  KEYFILE
```

Remarks LOADKEY loads a new Function Key Macro definition file, making 48 new F-Key macros available to the script. KEYFILE should be a word, string, or string variable containing a fully qualified DOS filename with the .KEY extension. If the drive and path are omitted, the current directory is searched.

Restrictions the FILENAME must end in a .KEY extension or an error occurs.

See also FKEY

Example
```
FKEY 1              ;send out the current F1 macro
LOADKEY NEW.KEY     ;load a new KEY file
FKEY 1              ;send out a different F1 macro
LOADKEY C:\QMODEM\1.KEY ;load still another KEY file
```

LOG

Function Open a LOG file to track QMODEM 4.5 activity.

Declaration `LOG LOGFILE`

Remarks LOG opens a QMODEM 4.5 Log file to which activity is recorded. LOG is the script equivalent of the ALT O command.

Please refer to the ALT O documentation for further information on the QMODEM 4.5 Log file feature.

LOGFILE is a word, string, or string variable containing any valid DOS filename. If the file exists, data will be added to it. If the file does not exist, the script will create it.

To disable the Logging feature in a script, use the TURNOFF LOG command.

See also `STAMP, TURNOFF`

Example

```
LOG  PHONELOG.DAT ;start logging to file Phonelog.Dat
- - -             ;more scripts commands, some of
                  ;which will be logged
TURNOFF LOG       ;close the log file
```

NOTE

Function Display a message on the screen and log it in the Capture file if open.

Declaration `NOTE TEXT`

Remarks NOTE displays the TEXT string on the screen. If Session Capture is active, TEXT is also recorded in the capture file. If the cursor is not in column 1, then a CR/LF precedes the TEXT to be displayed, forcing the cursor to the first position of the next line.

Unlike other text display commands, the TEXT string is NOT bound by quotes. The string starts immediately after the first space following the NOTE command and ends with the last character on the line (or the semicolon which starts a comment field).

See also `CAPTURE, DISPLAY, DISPLAYLN`

Example

```
NOTE This is a test of the note command ;comment1
```

OPENFILE

Function Open a sequential TEXT file for input or output.

Declaration

```
OPENFILE  FILENAME  READ|REWRITE|APPEND
```

Remarks OPENFILE opens a standard ASCII text file for input or output. FILENAME must be a valid DOS filename. Only one file may be open at a time.

Parameters:

`READ`

Opens the file for INPUT with the READFILE command.

`REWRITE`

Opens the file for OUTPUT with the WRITEFILE command. If the file exists, its contents are erased and its length is reset to zero. If the file does not exist, it is created.

`APPEND`

Opens the file for OUTPUT and positions the file pointer to the end of the file. All data written will be added sequentially at the end of the file.

Restrictions Only one file can be open at a time.

See also CLOSEFILE, READFILE, WRITEFILE

Example

```
CLRSCR
NOTE Testing FILE I/O
NOTE Clearing the file
OPENFILE testfile   rewrite    ;open the file
ASSIGN 1 0                     ;set $1 = "0"
NOTE Writing to the file
T:
WRITEFILE $1              ;write $1 to the file
IF "$1" = "100" c1        ;is $1 = 100? go to CL:
```

```
DISPLAY   "$1 "    ;display the counter
INCR 1             ;increment $1
GOTO t             ;loop and write again
CL:
CLOSEFILE   ;close the file
OPENFILE testfile read  ;re-open for Reading
NOTE Reading from the file
READING:
READFILE  0        ;read first line into $0
DISPLAY "$0, "     ;show it
IF "$0" = "_EOF_" done  ;Is it EOF?  goto DONE
GOTO READING       ;loop and read another
DONE:
CLOSEFILE          ;close the file and
EXIT               ;exit
```

PAUSE

Function Pause a script for a specified amount of time.

Declaration `PAUSE  PAUSEVAL`

Remarks PAUSE is similar to DELAY, but normal screen and keyboard I/O are not suspended. PAUSEVAL is an explicit numeric value or variable containing the length of the delay in milliseconds (1000 = 1 second). This command is useful when building menus or displaying online help.

Restrictions PAUSEVAL must be in the range 1-32767.

See also DELAY

Example

```
PAUSE 100   ;stops for 1 tenth of a second
PAUSE 1000  ;stops for 1 second
PAUSE 10000 ;stops for 10 seconds
```

POP

Function Remove the top entry from the stack and store it in a variable.

Declaration POP VARIABLE

Remarks POP is used to retrieve a value which was PUSHed onto the "stack". The stack is an area of memory which can store up to 60 values (IE, text, number, etc...).

The stack operates in LIFO mode (Last-In, First-Out). Thus, a POP command retrieves the item which was last PUSHed onto the stack. Retrieving a value other than the top one requires multiple POP commands.

POPping an empty stack returns a NULL string (zero length).

PUSHing a full stack yields a script error.

See also PUSH

Example

```
POP 0          ;POP stack into $0. $0 will be NULL
               ;because of no previous PUSH
ASSIGN 0 0     ;set $0 to zero
TOP:           ;set a label TOP
INCR 0         ;increment $0
NOTE This is $$0 [$0]   ;display the value of $0
PUSH $0        ;PUSH it on the stack
IF "$0" = "10" POPSTACK ;test for value of 10
GOTO TOP       ;loop back
POPSTACK:      ;10 numbers on stack now
POP 1 ;POP the stack into $1
NOTE This is $$1 [$1]   ;display the value of $1
IF "$1"  "" POPSTACK    ;If not NULL, get another
NOTE Done.  ;now we're done
EXIT
```

PORT

Function Switch to a different COM port.

Declaration `PORT PORTNUM`

Remarks PORT switches the active COM port. PORTNUM is an explicit numeric value or variable in the range 1-8. If the port selected is valid, the current port is closed, DTR is dropped, the new port is opened with the same COM parameters as the old port and DTR is raised.

PORT is the script equivalent of the [ALT][K] command.

This command can be used to detect the active COM port (the port to which the modem is connected).

Restrictions Valid COM ports must be defined in Setup ([ALT][N][M][P]).

Example

```
; This assumes a Hayes or compatible modem
;
TIMEOUT 2 TRY2          ;
PORT    1               ; select COM1 first
SEND    "AT^M"          ; send the ATtention command
WAITFOR "OK"            ; look for the response
GOTO    ON-LINE!        ; if successful, jump!
TRY2:                   ; next label
TIMEOUT 2 ERROR
PORT    2               ; select COM2
SEND    "AT^M"          ; send the ATtention command
WAITFOR "OK"            ; look for the response
GOTO    ON-LINE!        ; if successful, jump!
ERROR:                  ; modem not found
NOTE    No Modem
EXIT
ON-LINE!:               ; we found the modem so let's
                        ; do something!
```

PUSH

Function Place an item on the top of the stack.

Declaration PUSH TEXT

Remarks PUSH stores an INTEGER, WORD, STRING or VARIABLE onto the top of the stack. TEXT can be retrieved later with the POP command. Please refer to the POP command for additional details, restrictions, and code example.

See also POP

Example See the POP command.

PUTSCR

Function Restores a screen previously saved with GETSCR.

Declaration PUTSCR

Remarks PUTSCR works in conjunction with the GETSCR command, in a manner very similar to the PUSH and POP command pair.

PUTSCR restores the screen which was saved by the GETSCR command at the same nesting level. The entire physical screen is restored, as opposed to the logical screen defined with a BOX or WINDOW command.

Restrictions Results are unpredictable if a previous GETSCR has not been executed prior to the PUTSCR command. GETSCR/PUTSCR may be nested up to three levels.

See also GETSCR

Example

```
GETSCR      ;save the current screen
CLRSCR      ;clear the screen
- - -      ;do more script commands
PUTSCR      ;restore the previously saved screen
```

READFILE

Function Read a record from a text file.

Declaration `READFILE INDATA`

Remarks READFILE command reads one line of text from the file opened with the OPENFILE command and stores it into the INDATA variable. See the OPENFILE command for an explanation and example.

Restrictions The Text file must have been opened with the READ option or a script error occurs.

See also `CLOSEFILE, OPENFILE, WRITEFILE`

RETURN

Function Return from a GOSUB or SCRIPT command.

Declaration `RETURN`

Remarks RETURN returns control to the statement which immediately follows the GOSUB or SCRIPT command through which the routine received control.

If there was no previous GOSUB or SCRIPT, RETURN behaves like an EXIT command. To unconditionally terminate a script, always use the EXIT command.

See also `GOSUB, SCRIPT`

Example

```
GOSUB SUB1          ;call the SUB1 subroutine
EXIT                ;end the script
SUB1:               ;the subroutine SUB1
- - -              ;script commands
RETURN              ;end of subroutine
;will branch back to the EXIT statement
```

SCRIPT

Function Call another script as a subroutine.

Declaration `SCRIPT SCRFILE`

Remarks SCRIPT passes control to the script identified in SCRFILE and operates identically to the GOSUB command. If the script being called includes a RETURN command, execution of the calling script will resume with the statement following the SCRIPT command. SCRFILE should be the name of a script file stored in the directory specified in Setup (ALT N D S).

Restrictions Up to 40 levels of SCRIPT and GOSUB commands may be nested.

See also GOSUB, RETURN

Example

```
; .....Script ONE.SCR.....     ;a comment line
NOTE Executing Script ONE.SCR ;display a note
SCRIPT TWO.SCR                ;call another script
NOTE Back in ONE.SCR          ;display a note
SCRIPT THREE.SCR              ;call another script
NOTE Back in ONE.SCR          ;display a note
EXIT  ;halt execution
; .....Script TWO.SCR.....     ;comment line
NOTE Executing Script TWO.SCR
SCRIPT THREE.SCR              ;call another script.
NOTE Back in TWO.SCR
RETURN                    ;return to previous script
; .....Script THREE.SCR.....  ;comment line
NOTE Executing Script THREE.SCR
RETURN                    ;return to previous script
```

The output of these three scripts (provided ONE.SCR was executed first) will be:

```
Executing Script ONE.SCR
Executing Script TWO.SCR
```

```
Executing Script THREE.SCR
Back in TWO.SCR
Back in ONE.SCR
Executing Script THREE.SCR
Back in ONE.SCR
```

SEND

Function Send data to the COM port.

Declaration `SEND  STRING`

Remarks The text specified by STRING is sent to the COM port and displayed on the local screen. The cursor will be positioned after the last character in STRING.

Example

```
SEND "^M"    ;send a carriage return (ENTER)
SEND "^~^~ ^~ ^~ ^M"     ;pause one second
                         ;followed by 3 spaces at .5
                         ;second each and then ENTER
ASSIGN 0 "^~^~ ^~ ^~ ^M"      ;put the above
                              ;string in $0
SEND $0                       ;send it
SEND "$Password^M"       ;send Password stored in the
                         ;dialing directory only
                         ;after a valid connect.
```

SETCOMM

Function Change the current COM port settings.

Declaration `SETCOMM  PARAMETER  [PARAMETER..]`

Remarks SETCOMM is the script equivalent of the ALT P command. At least one parameter is required; parameters may be specified in any order.

Valid parameters are:

110	110 baud	EVEN	Even parity
300	300 baud	ODD	Odd parity
1200	1200 baud	NONE	No parity
2400	2400 baud	MARK	Mark parity
4800	4800 baud	SPACE	Space parity
9600	9600 baud	7	7 data bits
19200	19200 baud	8	8 data bits
38400	38400 baud	1	1 stop bit
57600	57600 baud	2	2 stop bits
115200	115200 baud		

Example

```
SETCOMM 9600        ;change only the baud rate to 9600
```

STAMP

Function Write a string to the LOG file.

Declaration

```
STAMP  TEXT
```

Remarks STAMP is similar to NOTE, but the TEXT string is not displayed on the screen. TEXT is stored into the LOG file (if open). Any text following the STAMP keyword is "logged".

See also NOTE

Example

```
NAME_LABEL:
WRITELN "                    [——-26-chars-max——-]"
WRITE   "Enter your name ? "
GETR    NAME 26
IF      "$NAME" = "" NAME_LABEL     ;check for null
IF      "$NAME" = "_OFFLINE_" CYCLE ;check offline
STAMP ****************************
STAMP User [$NAME] Logged On
```

could add the following two lines to the LOG file:

```
10:37:33  04/10/87  STAMP ****************************
10:37:33  04/10/87  STAMP User [Sysop] Logged On
```

STRING

Function Define one or more variable(s)

Declaration

```
STRING  VARIABLE  [VARIABLE...]
```

Remarks Up to 60 variables can be defined with the STRING command. New variables are referenced by prefixing them with "$" (except where noted).

Restrictions Variables are stored in the order in which they were defined. All user-defined variable names must start with a letter.

If two or more variable names share the same beginning characters, define the longest name first. Otherwise, only the shortest name will be recognized.

For example, let's define three new variables called $A, $AA and $AAA. To be able to reference all three, they must be defined as follows:

```
STRING  AAA, AA, A
```

See also ASSIGN

Example

```
STRING THIS THAT OTHER  ;create three variables
ASSIGN THIS "NEW TEST"  ;put "NEW TEST" in $THIS
NOTE [$THIS] [$THAT] [$OTHER] ;display their values
```

would display:

```
[NEW TEST] [] []
```

SYSTEM

Function Stop the script and exit QMODEM 4.5 .

Declaration `SYSTEM X|Y`

Remarks SYSTEM unconditionally halts script execution and exits QMODEM 4.5. It is the script equivalent of the ALT X command.

See also `EXIT, RETURN`

Example

```
SYSTEM X     ;exit QMODEM 4.5 with DTR left High
SYSTEM Y     ;exit QMODEM 4.5 with DTR dropped
```

TIMEOUT

Function Set a WAITFOR timeout value and optional routine label.

Declaration `TIMEOUT  TIMEVAL [LABEL]`

Remarks TIMEOUT controls the length of time WAITFOR commands will wait for a text string. TIMEVAL is an explicit value or numeric variable containing the timeout delay (in seconds). If LABEL is specified, the script will branch to that routine when the timeout delay expires. If LABEL is omitted, the script will terminate with a timeout error.

See also `WAITFOR`

Example

```
TIMEOUT 3 AGAIN    ;set timer to 3 secs, label AGAIN
AGAIN:             ;here's the label
SEND "ATZ^M"       ;send modem reset command
WAITFOR "OK"       ;if OK is not seen in 3 seconds,
                   ;goto the label AGAIN (try again)
```

TURNOFF / TURNON

Function Change QMODEM 4.5 operating parameters.

Declaration

```
TURNOFF  KEYWORD  [KEYWORD...]
TURNON   KEYWORD  [KEYWORD...]
```

Remarks

TURNON and TURNOFF are ON/OFF switches for QMODEM 4.5 functions or facilities which can affect the operation of QMODEM 4.5, even after the script has terminated.

Following is the list of valid TURNON/TURNOFF keywords and the equivalent terminal mode command. The third and fourth columns indicate whether the keyword can be used with TURNOFF and TURNON. The fifth column provides a brief description of the keyword.

Keyword	Cmd	OFF	ON	Action
8_BIT	ALT 8	x	x	8 bit mode
BS_DEL	ALT 1	x	x	Mode of the Backspace key,
		x	x	On: BS=DEL, Off: BS=^H
CAPTURE	^Home	x		Off only. Closes Capture file if open
CASE		x	x	Case sensitivity of WHEN and WAITFOR
ECHO	ALT E	x	x	Local Echo mode (duplex)
LINEFEED	ShTab	x	x	Controls adding LF's to incoming CR's
LOG	ALT 0	x		Off only. Closes the LOG file if open
MUSIC	ALT M	x	x	ANSI Music mode
NOISE	ALT B	x	x	Beeps & Bells (on or off)
ONLINE		x	x	State of carrier detection for the GET Script commands
PRINT	^PrtSc	x	x	Local print echo mode
SCROLL	ALT U	x	x	Scroll-back capture mode
SPLIT	ALT S	x	x	Split screen mode on or off
XON/XOFF	ALT Z	x	x	XON/XOFF flow control mode

Example

```
TURNON  8_BIT NOISE XON/XOFF
TURNOFF MUSIC ECHO LINEFEED
```

```
CAPTURE C:\QMODEM\CAP.TXT     ;turn on capture file
TURNOFF CAPTURE   ;close capture file
TURNOFF LOG ;nothing happens, not open
```

UPLOAD

Function Send a file to the other computer.

Declaration `UPLOAD PROTOCOL FILENAME [ASCII OPTION...]`

Remarks UPLOAD performs two basic types of file transfers; ASCII and non-ASCII. FILENAME must be a fully qualified DOS filename, or the file must be located in the current directory.

Valid protocols are:

A	ASCII	X	Xmodem
C	Xmodem CRC	R	Relaxed Xmodem
O	Xmodem-1K	F	Xmodem-1K/G
Y	Ymodem Batch	G	Ymodem/G Batch
Z	Zmodem Batch		

All external protocols (defined with ALT N P) are also valid.

For ASCII uploads, additional parameters may be specified to override the Setup (ALT N P A T) defaults.

Following are the valid ASCII upload options:

`PACECH=[NONE|character]`

Specifies a pacing character which must be received before the next text line is sent. The first line of the file is always sent regardless of this setting.

`PACESPEED=[nnnn]`

The delay, in milliseconds (1000 = 1 second) inserted between each character sent.

XLATE=[ON/OFF]

Specifies whether the outgoing file is (ON) or is not (OFF) to be translated with the output translate table (ALT A - 2) prior to being sent.

CR=[NONE/STRIP/ADDLF]

Defines carriage-return (CR) handling. This is normally not needed unless the receiving computer does not recognize the standard CR character (ASCII 13).

LF=[NONE/STRIP/ADDCR]

Defines LineFeed (LF) handling. Similar to CR, but affects the LF character (ASCII 10).

EXPAND=[ON/OFF]

If ON, adds a leading space to null lines (which contain only a CR/LF pair) so that there is a leading SPACE. This is a useful feature when uploading messages to most BBS systems, which interpret a null line as and end-of-message indication.

EOLCH=[nnn]

Defines the ASCII value of the End-Of-Line character. It is very important to set this parameter correctly. Since most ASCII files end each line with a CR/LF sequence, the LF character should be defined as the EOLCH (LF is ASCII 10).

See also DOWNLOAD

Example non-ASCII

```
UPLOAD 0 QMODEM.ARC     ;send the file QMODEM.ARC
                        ;using Xmodem-1K. The file
                        ;must be in the
                        ;current directory
UPLOAD X C:\AUTOEXEC.BAT      ;upload the autoexec.bat
                        ;file from the C: root
                        ;directory using Xmodem
```

Example ASCII

```
SEND"^M"                ;send a carriage return
WAITFOR "Command"       ;look for the command line
SEND"E^M"               ;command to enter a message
```

```
WAITFOR "To [Enter]=all?"
SEND"Sysop^M"              ;to the Sysop
WAITFOR "Subject:?"
SEND"A Private msg^M"      ;the msg description
WAITFOR "Security:"
SEND"R^M"                  ;Receiver only
UPLOAD A TEST.DOC PACECH=: EXPAND=ON EOLCH=10
                           ;upload a text file to a
                           ;PCB BBS and use the colon
                           ;as the pace char
SEND "^M^~^~S^M"           ;tell the board to save the
                           ;msg
```

WAITFOR

Function Wait for a specific string to be received.

Declaration `WAITFOR STRING`

Remarks WAITFOR waits for the defined text string to be received on the COM port. WAITFOR will wait the amount of time specified in the last TIMEOUT command. If no TIMEOUT command was issued, a default of 60 seconds is used.

Each WAITFOR command may have a corresponding TIMEOUT value for explicit control of timing and error conditions. If this method is selected, all WAITFOR commands should have an associated TIMEOUT command. This will minimize unexpected errors (such as an incorrect branch).

See also TIMEOUT

Example

```
TIMEOUT 3 AGAIN    ;set timer to 3 seconds, label AGAIN
AGAIN:             ;here's the label
SEND "ATZ^M"       ;send modem reset command
WAITFOR "OK"       ;if OK is not seen in 3 seconds,
                   ;goto the label AGAIN (try again)
```

WAITUNTIL

Function Wait for a specified time before continuing.

Declaration `WAITUNTIL TIME`

Remarks WAITUNTIL suspends script execution until a specific time of day. TIME must be in the same format as specified in the [ALT][N][O][C][T] Time Mask.

While WAITUNTIL is in effect, the target TIME and the current system time are displayed side by side until they match, at which time the script resumes execution with the next command.

If this command seems to fail, double-check the Time Mask and what you have coded in the script.

See also `DELAY, PAUSE`

Example

```
WAITUNTIL 04:00:00      ;wait till 4 a.m.
DIAL "1 2 3 4"          ;dial the numbers
WAITUNTIL 24:00:00      ;will never reach 24:00:00
                        ;with 24 hr time as the
                        ;default mask!
```

WHEN

Function Allows searching for alternate text strings while WAITFOR is active.

Declaration

```
WHEN STRING1 STRING2(type 1)
WHEN STRING1 LABEL(type 2)
WHEN (type 3)
```

Remarks WHEN may only be used while a WAITFOR is active.

WHEN (Type 1) sends STRING2 when STRING1 is received

WHEN (Type 2) branches to LABEL when STRING1 is received.

WHEN (Type 3) immediately cancels all active WHEN commands.

WHEN can be used in a logon (linked) script for systems which change certain prompts depending on when you last called. WILDCAT!, for example, changes prompts if you call more than once during the same day.

A maximum of 10 WHEN statements can be active at one time. WHEN statements remain active until they are explicitly canceled by a blank WHEN, and are not subjected to the TIMEOUT restrictions which affect WAITFOR commands.

See also WAITFOR

Example

```
WHEN
WHEN "What is your first name?" "John Friel PS^M"
WHEN "[S]top?" "^M"
WHEN "Would you like to view the bulletin menu?" "N^M"
WHEN "[R]ead mail, [L]ist now or [C]ontinue?" "C^M"
WAITFOR "Command > ?"
DELAY100
WHEN
```

The first WHEN (Type 3) clears any pending WHEN commands. The following WHEN (Type 1) commands identify all logon prompts and their respective responses. With this method, only one WAITFOR is needed; WHEN commands handle all others prompts.

WINDOW

Function Create a logical screen with user defined dimensions.

Declaration WINDOW C1 R1 C2 R2

Remarks WINDOW creates a logical screen window. Unlike the BOX command, WINDOW does not cause a frame to be drawn on the screen. For additional information, please refer to the BOX command.

Restrictions See the BOX command.

See also BOX, CLRSCR, GETSCR, PUTSCR

Example

```
WINDOW 1 1 80 24 ;window the full size of the screen
WINDOW 20 4 60 8 ;window 40 cols wide by 4 lines high
```

WRITE

Function Send text to the COM port without a CR/LF.

Declaration WRITE STRING

Remarks WRITE sends text data to the COM port, but does not add a CR/LF at the end of the string. This is useful when sending prompts to insure that the cursor remains on the same line. The WRITELN command is similar, but adds a CR/LF at the end of the string.

See also WRITELN, DISPLAY, DISPLAYLN, SEND

Example

```
WRITELN "                          [———————]"
WRITE "Enter your first name ? "
GETR F_NAME 12
WRITELN " "
WRITELN "                               [———————————]"
WRITE "Enter your last name ? "
GETR L_NAME 20
WRITELN " "
WRITELN "                               [———————]"
WRITE "Enter your password ? "
GETR P_WORD 12
```

The following will be displayed on the receiving computer:

```
                              [———————]
Enter your first name ?  JOHN
                                 [———————————]
Enter your last name?  FRIEL III
                               [———————]
Enter your password ? PASSWORD
```

WRITELN

Function Send text out the COM port with a CR/LF.

Declaration WRITELNSTRING

Remarks WRITELN is the CR/LF version of the WRITE command.

See also WRITE, DISPLAY, DISPLAYLN, SEND

Example

```
WRITELN                                  " [———————]"
WRITE "Enter your first name ? "
GETR F_NAME 12
WRITELN " "
WRITELN "                                [—————————]"
WRITE "Enter your last name? "
GETR L_NAME 20
WRITELN " "
WRITELN "                                [———————]"
WRITE "Enter your password ? "
GETR P_WORD 12
```

The following will be displayed on the receiving computer:

```
                                [———————]
Enter your first name ? JOHN
                              [—————————]
Enter your last name? FRIEL III
                                [—————————]
Enter your password ?  PASSWORD
```

WRITEFILE

Function Write a line to a text file.

Declaration `WRITEFILE WORD|STRING|VARIABLE`

Remarks WRITEFILE writes a word, string, or string variable to the file opened by the OPENFILE command.

Restrictions OPENFILE with the REWRITE or APPEND option must have been issued first.

See also `CLOSEFILE, OPENFILE, READFILE`

Example See the OPENFILE command for an explanation and example.

Script Error Messages

Error messages, while not a pretty thing to see, are important in fixing the problems you may run across.

`CAPTURE Filename not found`

The CAPTURE command expected a WORD parameter and it was either missing or a STRING was specified.

`DOWNLOAD Filename expected`

The command was not followed by any text or the following text was not a WORD.

`DRIVE Letter A..Z expected`

The DRIVE command did not receive a character between A and Z as a parameter.

`EGA value must be 25, 43 or 50`

The value passed to the EGA command was not 24, 43 or 50. Use a correct value.

`ERROR opening FILE`

An error occurred in OPENFILE. Check the filename and correct.

`ERROR Opening Script File`

The script file was found, but could not be opened. Make sure the file is not locked in a network environment.

`ERROR reading from FILE`

An error occurred in a READFILE command. Make sure that the file contains valid data.

`ERROR writing to FILE`

An error occurred in a WRITEFILE command. Make sure the file is not locked by a network or multi-tasker, and that you are not running out of disk space, and try again.

`File already open`

Two OPENFILE commands were issued without an intervening CLOSEFILE. Only one file may be opened at a time.

`FILE not open`

READFILE or WRITEFILE was issued before the file was opened with OPENFILE. Check the script logic.

`FILE not open for READ`

READFILE was issued against a file opened for REWRITE or APPEND. The file must be opened for READ.

`FILE not open for WRITE/APPEND`

WRITEFILE was issued against a file opened for READ. The file must be opened for WRITE or APPEND.

`FKEY Filename does not exist`

The filename specified in the LOADKEY command does not exist.

`FLUSH keyword not KBD, COM or ALL`

The FLUSH command requires the keyword KBD, COM or ALL. Correct and re-try.

`FON Filename does not exist`

The filename specified in the LOADFON command does not exist.

`GETSCR Nested too deep`

GETSCR/PUTSCR commands can be nested 3-deep. A 4th GETSCR was detected without a corresponding PUTSCR.

`GRAPHICS Keyword not found`

GRAPHICS was issued without a parameter or with an invalid one. Correct and re-try.

`Insufficient space for String`

STRING memory is exhausted. You have exceeded the memory of your machine.

`INTEGER expected`

The command expected an INTEGER value (-32768 to 32767). The variable or string was null or contained non-integer data.

`INTEGER value required for INCR or DECR`

The VARIABLE argument in an INCR or DECR command did not contain an integer value. Check script logic and ASSIGN commands and insure that numeric data is stored into the variable.

`Invalid IF Opcode`

The IF command requires one of 6 comparison Opcodes. Make sure the Opcode is correct and that necessary quotes are used.

`Invalid KEYWORD or TOKEN`

The first word in the line was not a valid KEYWORD, or the KEYWORD was passed the wrong type of data.

`Invalid LABEL or misplaced Colon`

A colon ":" was found at the beginning of a line. This may be an invalid LABEL or the colon needs to be changed to a semicolon if the line contains a comment.

`INVALID OPENFILE mode`

An invalid parameter followed the OPENFILE command. Valid OPENFILE parameters are READ, REWRITE, or APPEND.

`Invalid Substitute VARIABLE`

The specified VARIABLE name was not found. Make sure the variable is defined with a STRING command before using it.

`Invalid UPLOAD keyword or keyword option`

One of the ASCII UPLOAD keywords was misspelled or contains an invalid parameter. Correct the keyword(s) and parameters and re-try.

`LABEL not found`

A LABEL was not found. Check the script for a possible omission or misspelling and try again.

`Line too long`

A script line exceeds 254 characters. Edit the Script and make sure lines are less than 254 characters.

`LOADFON Filename not found`

LOADFON expected a WORD parameter. The parameter was missing or a STRING was specified instead.

`LOADKEY Filename not found`

LOADKEY expected a WORD parameter. The parameter was missing or a STRING was specified instead.

`LOG Filename not found`

The LOG command expected a WORD parameter and it was either missing or a STRING was specified.

`Off Screen Coordinates`

The Row and/or Column argument(s) of a GOTOXY command was (were) invalid. Since GOTOXY is limited by BOX/WINDOW boundaries, make sure you reset any WINDOW or BOX commands before assuming a full 80x25 screen.

`ON or OFF parameter expected`

The DEBUG command can only be followed by the WORD ON or OFF. Correct and re-try.

`PORT selection invalid`

PORT expects a WORD in the range 1 to 8. It was either missing out of range.

`RETURN SCRIPT Filename not found`

A Calling script was not found when a RETURN command was issued (IE, it was deleted or renamed). Execution cannot continue. Check to be sure you are not deleting/renaming the calling script by accident.

`SCRIPT Filename not found`

A called SCRIPT file was not found. The script filename parameter was missing, or the file could not be located.

`SCRIPT/GOSUB nested too deep`

SCRIPT and/or GOSUB commands were nested more than 40 levels. Some serious thought needs to be put into the script(s) to reduce the levels of nesting.

`SETCOMM Keyword or Letter expected`

An invalid parameter was used in a SETCOMM command.

`STRING expected`

A command required a STRING, but it was either missing or a WORD was specified.

`STRING length 0`

A null string was used. The string must be at least 1 character.

`STRING not defined`

The string variable used in a command was not defined. Define the variable with the STRING command and try again.

`STRING VARIABLE expected`

A string variable command parameter was missing, misspelled, or not defined.

`Substitute Line too long`

String variable substitution yielded a line longer than 254 characters. Use additional WRITE/DISPLAY/SEND commands to break up the line into shorter ones.

`SYSTEM parameter not "Y" or "X"`

"X" or "Y" are the only valid arguments of the SYSTEM command. Correct and try again.

`Target LABEL cannot be a KEYWORD`

A reserved script keyword was used as a label. Correct and try again.

`Too many PUSHes`

More than 40 values were PUSHed onto the stack without any intervening POPs.

`Too many WHEN's defined`

The maximum of 10 WHEN commands were active and an additional WHEN was issued. Use a blank WHEN command to clear unused WHENs and try again.

`TURNOFF Keywords(s) not found`

A TURNOFF keyword was missing or invalid.

`TURNON Keyword(s) not found`

A TURNON keyword was missing or invalid.

`UPLOAD Filename does not Exist`

The UPLOAD filename did not exist. Verify the filename and try again.

`UPLOAD Filename expected`

The FILENAME argument of the UPLOAD command was not a WORD or was missing.

`WORD expected`

A WORD argument was expected, but it was missing or a STRING was used.

`WORD or LABEL expected`

A WORD or LABEL argument was expected, but it was missing or a STRING was used.

`WORD or STRING expected`

A WORD or string argument was expected, but was not found. This is usually caused by a missing parameter.

Commonly Asked Questions

Q- When I start up Qmodem, the Online/Offline indicator in the status line always says ONLINE? Why?

A- The modem is sending a signal back to Qmodem saying that it is connected to another computer. On Hayes modems and clones that use the '&' (ampersand) extended commands, there is usually a command that controls the CD (carrier detect) signal. The default mode (unfortunately) is for the CD to be on all the time.

Check to see if your modem is supported in Quick Modem Config. If so, then use that to configure your modem and Qmodem. If it not listed in there, some of these hints may help.

To make things right, send the following command to your modem from terminal mode:

AT&C1

You will have to check your modem manual to verify this command in case it is not quite 100% Hayes compatible.

Q- I make changes to the Dialing Directory but they are not saved.

A- Changes made to the dialing directory are saved by pressing the [**F10**] key. Please take a look at the status line on the bottom of your screen, which clearly indicates that F10 saves changes, while [**ESC**] aborts changes.

As changes in operating procedures are made, explanatory displays are updated to reflect them. Please look at the screen more closely when you encounter a problem; the solution may be a few lines away and will save you a telephone call to us in the process.

Q- Why does Qmodem turn on HALF Duplex after I connect to a BBS? What controls the Duplex mode?

A- There are four factors which affect Half and Full Duplex (echo):

1. The modem itself is set to echo. On most modems, ATE1 will cause commands sent to the modem to be echoed back to the system while offline only. ATF0 will set local echo ON after the connection has been established. Usually, ECHO OFF is the modem default.

2. Doing ALTE causes Qmodem itself to provide local echo.

3. Local Qmodem echo can be set in the Qmodem phone directory. AltD, then O to see the alternate screen. The last column on the right is the Duplex mode for that directory entry. Once you connect, you will get echo if that column contains a "H". Change it to "F" and press F10 to save the changed directory entry.

4. The Script commands TURNON ECHO and TURNOFF ECHO can also play a role in setting the local echo. This is usually the one everyone overlooks! Check those Linked Scripts in the dialing directory to see if these are set wrong. This is the last place usually to look, but it will pay to be sure!

Q- My HST modem does not connect with 1200 or 2400 non-MNP modems. Either nothing happens, even though the connection is made, or I get a VOICE return from the modem.

A- The HST always tries to determine if it is talking to another HST first, then if it is talking to another MNP modem. In some cases, this process takes longer than the other modem's carrier/training sequence (the high-pitch sound the modem makes when it first answers your call). As a result, the HST waits forever and eventually times out with a NO CARRIER condition.

If you receive a VOICE return code, but the other modem has in fact answered the call, it is possible that background noise in the connection is being interpreted by the HST as voice rather than data.

If you KNOW that the other modem is non-MNP, you may use the AT&M0 command which effectively disables the HST's MNP capabilities and makes it act exactly like a standard 1200/2400 modem without MNP. The AT&M0 will eliminate many of the problems you may be experiencing connecting with slower non-MNP modems.

To correct the VOICE problem, issue the ATX7 command (the previous setting was ATX6 which turns on the HST's voice- recognition circuitry). This will prevent the HST from becoming confused. However, it will also prevent the HST from recognizing legitimate voice answers.

Q- When dialing out of the phone book, Qmodem does not switch baud rates to what was listed in the directory.

A- This is directly related to the first Question dealing with the Online / Offline indicator. If the indicator is ONLINE when you go to dial from the phone book (AltD), the baud rate will not be switched because Qmodem assumes you are already online! If you are Offline, then the baud rate is changed before placing the call.

Q- My Hayes 2400B modem will not hang up reliably.

A- The Hayes 2400B and many clones come from the factory with the DTR signal forced TRUE (always on) and Qmodem wants to control the DTR signal. The most reliable method for hanging up, it to toggle the DTR signal going to the modem. On the Hayes 2400 (and 2400B) this is done by sending the following command:

```
AT&D2
```

Then, go into Setup (AltN/M/M/H) and change it to the following:

```
DTR
```

Make sure the letters are capitalized and there are no additional characters, just DTR. Then make sure you exit and Save the Configuration (Alt/N/E/S).

Q- What's Ymodem/G and 1K-Xmodem/G and why is it these protocols do not show up in the protocol window when I do an up/download. What does it take?

A- Ymodem/G and 1K-Xmodem/G are protocols which assume that all error corrections are performed by the modem hardware. Many modems are now supporting the MNP (Microcom Networking Protocol) error detection/correction protocol, and most high-speed modems use proprietary error correction techniques at higher speeds.

If you have such a modem, you should activate CTS/RTS Hardware Flow Control via Setup (AltN/M/T/C = ON). This will enable the Ymodem/G and 1K-Xmodem/G protocols.

Q- What is an Error-Correcting modem?

A- Error-correcting modems perform error correction and recovery on incoming data by themselves. This is a feature usually implemented in the modem's internal firmware (ROM, for example). The accepted standard for internal modem error correction is MNP (Microcom Networking Protocol), names after the company (Microcom) who developed it. MNP is not a "Fixed" standard, it is available in levels 1 thru 6, with MNP level 3 being the most commonly available implementation.

For two modems to establish an error-free connection, they must both support the same MNP level. Higher levels of MNP, however, are compatible with lower levels of the standard. Two modems supporting MNP level 3 and communicating at 2400 (using the Bell 2400 standard) should establish an error-free connection. Error-free connections are usually indicated by the modem's verbal or numeric return code upon connect.

A Multitech MNP-equipped modem may, for example, return a CONNECT 2400/RELIABLE message, while a USRobotics HST modem would return a CONNECT

2400/ARQ message upon connect. Although many high-speed modems (IE, 9600bps and above) from different manufacturers may support the same level of MNP, they may use radically different encoding modulation schemes to yield high data transfer rates, which makes them incompatible at high speeds.

For example, the Hayes, Microcom, and USR 9600 modems all support MNP level 3, but are unable to communicate with each other at speeds higher than 2400 due to the incompatibility of their proprietary modulation techniques. Most of these modems will automatically "fall back" to the lower speed (IE, 2400) where a reliable error-correcting connection can be made.

Q- I press ENTER in the dialing directory, but it does not dial the current entry. It dials another entry. Why?

A- You have explicitly tagged entries in the directory, probably with the space bar, and you then moved to another directory location where no tagged entries show. When you press ENTER, Qmodem dials tagged entries. If NO entries are tagged, then it dials the current entry. There is a tagged entry count displayed at the top of the AltD screen. If it is greater than zero, some entries are tagged.

Q- In Qmodem 3.1a I could start the program with any non-blank command-line parameter to bypass the opening screen delay. This no longer works in Qmodem 4.x. What's wrong?

A- The opening delay can no longer be defeated in Qmodem. Although many have tried, the only known method to get around this is to REGISTER your program. You will receive your own Qmodem registration number, and the opening delay will go away after the program has been registered to you. Check the documentation for registration info. We appreciate your support.

Q- I inadvertently sorted my directory. How do I get back to what it was before?

A- Undo the sort by pressing Ctrl-U. If you inadvertently sorted your directory TWICE, you're stuck with a sorted directory. If you wish to experiment with the new directory functions, make a copy of your QMODEM.FON file before you start Qmodem.

Q- I created a logon script with QuickLearn and it does not work.

A- It is likely that you captured time- or environment-dependent information in the script. For example, one of the prompts captured by QuickLearn contains the amount of time left during your online session.

Edit the script manually to remove that part of the prompt. QuickLearn is quick and easy, but it is not intelligent. It records everything that happens between you and the other computer and faithfully replicates it in the script, warts and all.

This can cause problems if prompts change or if they contain information that's not likely to be there — or that will change — the next time you call.

Q- The Host mode seems to "run away" as soon as it's started!

A- This is another common problem people are experiencing. The cause is always that the modem is not reporting the true state of the CD (Carrier Detect) signal coming from the modem.

For the Host to operate correctly, the CD signal is checked to see when a user is online or has disconnected. Because the Host can be started when you are already online, this can be disastrous if the modem is not set up correctly!

The usual symptom is that the Host takes right off, answering its own questions with the text it is displaying (or trying to display). This is because the modem Echo (ATE1) is the default and the host thinks someone is really online.

Check your status line before pressing Alt5. If it says ONLINE all the time, this is the culprit.

To cure the problem:

If your modem has DIP switches, look in the modem manual for the one that controls the CD signal and change it so that the modem reports the true state of the CD.

If your modem does NOT have DIP switches, it must have what is called NRAM (Non-Volital RAM) to store it's configuration. Most modems that have NRAM use the &C command to control the CD signal. From terminal mode, issue the following:

```
AT&C1&W
```

If your modem comes back and says "OK", you are all set! The status line should then show OFFLINE. Once the online/offline problem is solved, 99% of your Host mode problems will go away.

Q- When dialing out of the phone book, Qmodem does not switch baud rates to what was listed in the directory.

A- This is directly related to the Online / Offline indicator. If the indicator is ONLINE when you go to dial from the phone book (AltD), the baud rate will not be switched because Qmodem assumes you are already online! If you are Offline, then the baud rate is changed before placing the call.

Q- Where can i get some BBS phone numbers for my dialing directory?

A- Print out the contents of WCLIST.TXT which is a text file on your Qmodem distribution diskette. It contains hundreds of numbers of BBSs organized by area code.

GLOSSARY

ARQ

Automatic Repeat Request. A general term for error control protocols featuring hardware detection and retransmission of defective data. This term is used primarily by US Robotics.

ASCII

American Standard Code for Information Exchange. A 7-bit binary code representation of letters, numbers and special characters. It is universally supported in computer data transfer.

Asynchronous

Data transmission in which the actual data is preceded by a start bit and followed by a stop bit since the time between transmitted characters varies. Compare Synchronous.

Auto Answer

The modem feature which enables detection of a ring and answering without assistance from a program.

Baud Rate

The number of discrete signal events per second occurring on a communications channel. It is often referred to as Bits per second (BPS) which is technically inaccurate but widely accepted.

BBS

Bulletin Board System.

Bit

Binary Digit. A single basic computer signal consisting of a value of 0 or 1, off or on.

Buffer

A memory area used for temporary storage during input/output operations.

Bulletin Board System

A host system, into which callers may dial with their modems to read and send electronic mail, upload and download files, and chat online with other callers.

Byte

A group of Bits acted upon as a group, which may have a readable ASCII value as a letter or number or some other coded meaning to the computer. It is commonly used to refer to 8-bit groups. 1 kilobyte = 1,024 bytes; 64K = 65,536 bytes or characters.

Carrier

A continuous frequency capable of being either modulated or impressed with another information-carrying signal. Carriers are generated and maintained by modems via the transmission lines of the telephone companies.

Conference

An area of public messages on a Bulletin Board System, usually with a particular topic and, often, a conference host or moderator to guide the discussion. Also called Folder, SIG (for "Special Interest Group") or Echo.

CCITT

A French acronym for the International Telephone and Telegraph Consultative Committee. This international organization defines the standards for telephone equipment such as the Bell 212A standard for 1200 baud, CCITT V.22 for 2400 baud and CCITT V.32 for 9600 baud.

CPS

Characters Per Second. A transfer rate estimated from the bit rate and length of each character. If each character is 8 bits long and includes a start and stop bit for Asynchronous transmission, each character needs 10 bits to be sent. At 2400 baud it is transmitted at approximately 240 CPS.

CRC

Cyclical Redundancy Check. An error-detection technique consisting of a cyclic algorithm performed on each "block" of data at the sending and receiving end of the transmission. As each block is received, the CRC value is checked against the CRC value sent along with the block. Many protocols including XMODEM-CRC and ARQ will request a resend until the block is received correctly.

Download

Receiving a file from a Bulletin Board System, using a terminal program (for example QModem) and a transfer protocol (for example Zmodem).

DTE

Data Terminal Equipment. The device that is the originator or destination of the data sent by a modem. In most cases with *WILDCAT!* this is the host computer system.

DTR

Data Terminal Ready. A signal generated by most modems indicating a connection between the DTE (computer) and the modem. When DTR is "high" the computer is connected. *WILDCAT!* manipulates DTR (sometimes shown as TR) to disconnect a caller when the [G]oodbye command is issued by lowering the signal for a few seconds.

Data Compression Protocols

Compression of data by the modem allows more information to be transferred in a shorter time frame. Protocols for data compression include CCITT V.42 *bis* and MNP 5,

Data Transmission Protocols

These are standards for modulation and transmission of data at various speeds. The standards are Bell 103 & V.21 for 300bps, Bell 212A & V.22 for 1200bps, V.22 *bis* for 2400bps, V.32 for 9600bps and V.32 bis for 14,400bps. Proprietary protocols are also used extensively for higher baud rates.

Echomail

Public Message Conferences on a Bulletin Board System which are shared and distributed among other Bulletin Boards as part of an Echomail Network.

Expanded Memory

Extra memory (above 640k) on your XT or AT-compatible computer, which is installed with an EMS driver, and may be used by some programs to store data.

Extended Memory

Extra memory (above 640k) on your 80286 or 80386 compatible computer. Not normally usable by DOS applications, but may be configured as a virtual drive or a disk cache on an 80286 computer, or as Expanded Memory on an 80386 computer.

Flow Control

A mechanism that compensates for differences in the flow of data to and output from a modem or computer. Either hardware or software can be used for this control to prevent data loss. Hardware flow control using the modem makes use of a buffer to store data to be sent and data received. Flow control is necessary if the Communications port is locked at a higher rate than the connection rate.

Error Control Protocols

These are various modem-based techniques which check the reliability of characters or blocks of data at a hardware level. Examples include MNP 2-4, V.42

Freeware

Computer software which may be distributed on Bulletin Board Systems, and for which the author requests no license fee or registration fee.

Full Duplex

Signal flow in both directions at the same time. It is sometimes used to refer to the suppression of online LOCAL ECHO and allowing the remote system to provide a REMOTE ECHO.

Half Duplex

Signal flow in both directions, but only one way at a time. It is sometimes used to refer to activation of LOCAL ECHO which causes a copy of sent data to be displayed on the sending display.

Host System

Another name for a Bulletin Board System (BBS)

Local Area Network (LAN)

A group of computers joined with cables and software, allowing hard disks and other devices to be shared among many users.

Mail Door

A subsection of a Bulletin Board System which creates .QWK mail packets.

MNP

Microcom Networking Protocol. A set of hardware error protection protocols (MNP levels 1–4) and data compression techniques (MNP level 5) developed by Microcom, now in the public domain. It makes use of CRC and retransmission of defective blocks by checking performed within the modem.

Netmail

Private electronic mail which is transmitted by a user calling one Bulletin Board System to another user calling a different Bulletin Board System.

NRAM

Nonvolatile Random Access memory. A user-programmable memory chip whose data is retained when power to the chip is turned off. NRAM is used in many modems to store default settings.

ON/OFF Hook

A descriptive term referring to manually lifting a telephone receiver (taking it OFF Hook) and replacing it (going ON Hook). OFF Hook produces a busy signal on the phone line.

Packer

A program to compress multiple files into a single file, such as PKZIP, ARC or LHARC

A mail packet (with a .QWK extension) from a host system

Parity

An error detection method used in both communications and computer memory checking to determine character validity. Communications now makes use of more efficient "block" checking although parity must still be matched in a communication session for transfer to take place correctly. Host communication in the BBS environment omits parity checking (no parity).

Protocol

A system of rules and procedures governing communications between two devices. File transfer protocols in *Qmodem* refer to a set of rules governing how error checking will be performed on blocks of data.

Public Domain

Computer software on which no copyright exists (usually by a specific statement to that effect by the author), and which may be freely used and distributed.

Remote Echo

A copy of the data being received is returned to the sending system for display on the screen. See Full/Half duplex.

Shareware

Computer software which is distributed on the "Honor System", which may be freely copied and distributed, but for which a registration fee or payment is required for continued use beyond an initial evaluation period.

Sysop

The SYStem OPerator of a Bulletin Board System. The person responsible for setting up and maintaining the BBS.

Thread

A group of BBS messages and replies linked and sorted by topic.

Unpacker

A program to uncompress a file from a Packer

Upload

To transfer a file from your computer to another computer, using your terminal program (for example *Qmodem*) and a transfer protocol (for example Zmodem)

V.21

CCITT standard for modem communications at 300bps. Modems made in the US follow the Bell 103 standard.

V.22

CCITT standard for modem communications at 1200bps, compatible with the Bell 212A standard used in the US and Canada.

V.22 bis

CCITT standard for modem communications at 2400bps. It includes automatic fallback to 1200bps and compatibility with Bell 212A and V.22 modems.

V.23

CCITT standard for modem communications at 1200bps with a 75bps back channel. It is used in the United Kingdom.

V.32

CCITT standard for modem communications at 4800 and 9600bps. It includes automatic fallback to 4800 when line quality is poor.

V.32 bis

CCITT standard for modem communications at 14400bps with automatic fallback to 12000, 9600, 7200 and 4800bps. As line quality improves communications speed can also be increased to the next higher rate.

V.42

CCITT standard for modem communications that defines negotiation for LAPM error control. V.42 also includes support for MNP error correction protocol levels 1–4.

V.42 bis

CCITT extension of V.42 that adds data compression to the V.42 correction protocols.

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